

AUG 21 1922

Railway Age

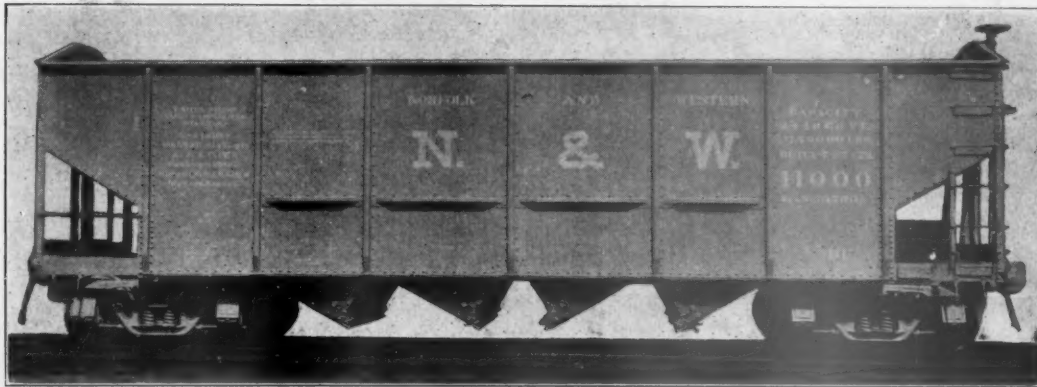
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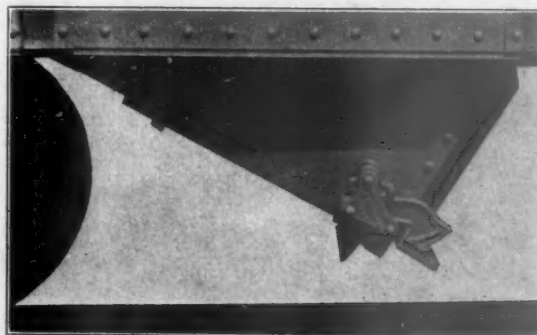
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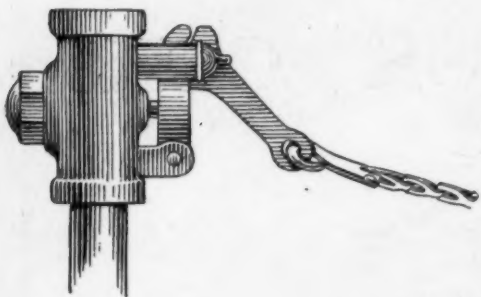
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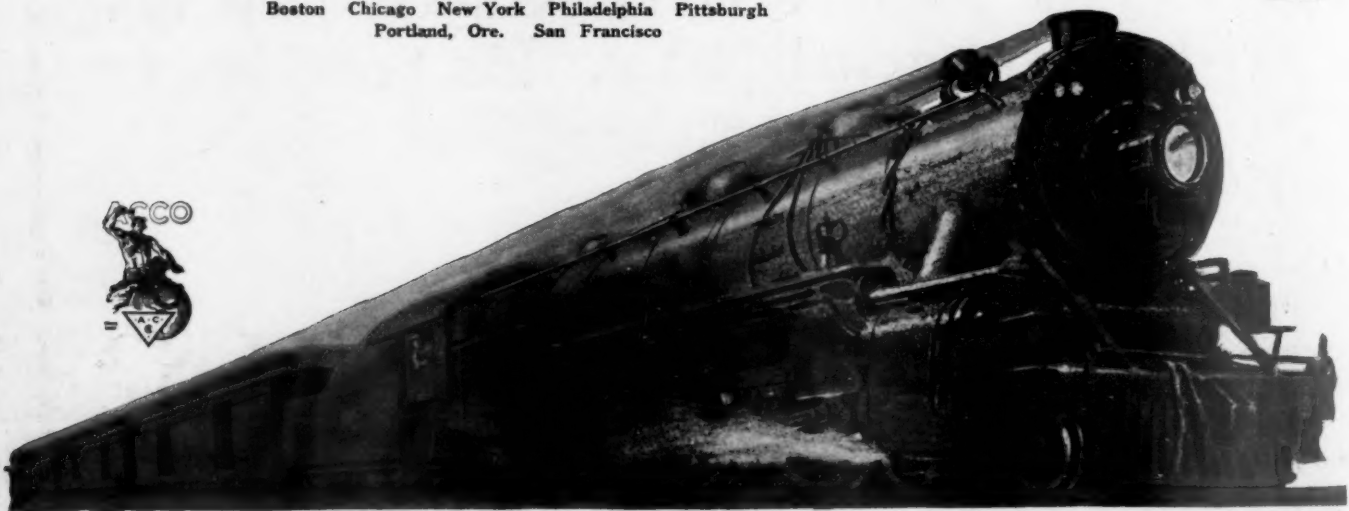
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EDITORIAL

Railway Age

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A recent study of the causes of deterioration of freight cars showed that 30 per cent of the expense for repairs was chargeable to time and the elements.

Prolonging the Life of Equipment

As the total cost of freight car repairs in 1920 was \$593,000,000, this means that rust and decay in freight cars alone cost the railroads nearly \$180,000,000 during that year. This is conclusive evidence of the importance to the railroads of any measures that will prolong the life of wood and steel and indicates the savings that might be effected by the development of non-corrosive materials or of efficient protective coatings. Because of their direct interest, the railroads should take a leading part in research work bearing on these problems and should test thoroughly every promising new material or method. Preservative treatment for lumber where tried has been quite successful. Rust-resisting sheets for cars are now available and a new process of coating underframes with zinc is being used abroad. On certain classes of equipment probably each of these means of prolonging the life of material would save far more than it costs. Possibly it is too early to apply them on a large scale but every railroad should be sufficiently interested to start tests that will demonstrate just what can be expected from each. The cost of such trials would be negligible and they would pay a big return if they led to even a relatively small reduction in the cost of car repairs.

Behind the current strike movement is a deep-seated plan to discredit private management of the railroads. No stone is left unturned in efforts to trump up charges of inefficiency of management and to draw unfavorable comparisons with visionary results under governmental operation. This propaganda is so persistent that it can be defeated only by the operation of the railroads with consistent prudence and honesty. It is necessary to guard against anything that has even the appearance of slovenly or indifferent management. The average railroad patron gains his most vivid impression of a railroad while traveling. Of next importance is the opinion gained at the passenger station while awaiting the arrival or departure of trains, and the resultant opinion is the composite impression made on him by the demeanor of the employees, the appearance and cleanliness of the station building and grounds, and the apparent condition of the track. Notwithstanding this, it is a notorious fact that main line passenger tracks are almost invariably in a less favorable condition in the immediate vicinity of passenger stations than at other points on the line. Casual observation made recently at a summer resort station on an important double-track trunk line in the middle west indicated an exceedingly unsatisfactory condition of the track. The receiving end of almost every rail was badly battered, in one case evidencing a split head. Not more than one joint bolt in ten was tight and not a few track spikes were missing. In fact, conditions were far from normal for high speed passenger service. Subsequent observation on the train disclosed riding qualities of the line which indicated that the condition observed at the station was by no means typical of the track

Track Maintenance Near Stations

along the entire line. It must be said in justice to the maintenance of way officers that the demands made on the track at passenger stations are perhaps less severe than elsewhere because of the lower speeds of the trains, but the fact remains that it is at the stations that people will pass judgment on the standards of maintenance in effect on the property.

One of the surprising developments of the shopmen's strike is the relatively small increase in the number of locomotives in need of repairs during the first two weeks after the walkout, when the roads had the smallest forces in the shops. Since more mechanics are being recruited daily, the condition of the power will probably improve. Nevertheless, if the miners go back to work, some of the coal-carrying roads may get more traffic than they could handle even if they were not handicapped by the strike. Under present conditions it would be hard to build up the shop forces to meet such an emergency. Probably the most effective method of overcoming a possible shortage of power would be to run the locomotives over two divisions. Several roads have tried this with notable success. One mechanical department officer stated that by thus increasing the mileage of the large power the road had reduced the number of engines required, cut down the cost of maintenance and decreased fuel consumption by 15 per cent. If these results can be obtained in regular operation, surely it would be worth while to try longer runs during the strike in case there is any local shortage of power.

No Prospect of Shortage of Power

To almost succeed is to fail. This truth we learn in childhood and it is illustrated every day in all sorts of contests

Difficulty of Checking a For- getful Engineman

in work and sport; yet in important matters of everyday duty we forget it, with sad results. The collision near Leeds, Mo., about ten miles from Kansas City, reported on another page, in which three passengers and an employee were killed, when an engineman ran his train past a meeting point, is a remarkable case. It could undoubtedly have been prevented if the conductor, the rear brakeman and the fireman had been absolutely sure that they knew where they were to meet the opposing train. They knew, but they did not know with that certainty which would cause them to act instantly when they saw that action was necessary. The conductor was, very naturally, reluctant to believe that the engineman was forgetting his meet order and so took time to consult another man before pulling the conductor's valve. The brakeman, equally incredulous, took time to look a second time at his copy of the order. Judging by the statements in the report, both of these men will now, undoubtedly, admit that they ought to have set the brakes at once; they could have settled their doubts afterward. As to the responsibility of the fireman, the situation appears to have been about what it always is in reports of this character; a fireman takes no special thought about meeting points until something happens

to force him to do so. The failures here noted are recalled, not for the purpose of apportioning blame, for the cultivation of cautiousness is one of the duties constantly enjoined on trainmen, and to censure for an excess of caution is delicate business; but simply to say what we said at the outset; ninety-nine and nine-tenths perfect—or even 99.99—is *not* a good percentage, when it comes to preventing collisions. There is no hope of reaching 100 per cent except by the use of the block system. The government report, by the way, says that this division of the Missouri Pacific is operated by “a manual block system;” but the order directing these two trains to meet at a side track not signaled, and unattended, was, of course, a suspension of the block system. For perfect service it is necessary to regard as essential elements of the block system (1) the beginning and the end of each block section to be unchangeable, permanent and immovable; (2) this location to be marked by a visual signal which the engineman can see, on every trip (so located that he cannot avoid seeing it if he is facing forward with his eyes open) and (3) every clear signal to give unqualified right of road to the next signal.

Fuel oil has superseded coal and coke in many branches of industry. This is especially true in railroad shops and enginehouses where crude oil is the

Is Your Oil-Burning Equipment Efficient?

fuel commonly used in furnaces for heat treating, flue welding, forging and riveting. With a coal shortage impending, oil furnaces will probably be installed to a greater extent than ever before and the need for efficient utilization of oil, as well as all other fuels, is self evident. Under present conditions more or less oil is being wasted because in many railroad shops both the furnaces and oil burners have been made locally, representing the ideas of some all-around mechanic. It is not flattery but an expression of undeniable truth to say that the manufacturers of modern oil-burning equipment, having spent years studying combustion problems and developing efficient oil furnaces, know a thousand times more about such equipment than shop men who have not given the subject special study. At first blush it may appear a simple thing to connect fuel oil and air pipes to some sort of combining tube and project the resulting flame into a furnace or onto the work to be heated. Satisfactory results cannot be secured in this way, however, as has been demonstrated by costly experience. Three fundamental operations are carried to completion in every oil-burning furnace which is economical in the use of fuel. In the first place, there must be atomization or breaking up of the more or less highly viscous oil into minute particles; the second operation is to change these particles of oil into gas; the third is to supply just enough air for complete combustion. All of these operations must take place before the flame is directed on the work, otherwise heat units will be wasted and an oxidizing or reducing flame produced with undesirable effects on the work itself. It stands to reason that these three functions cannot be performed except in a suitably designed furnace and with a burner scientifically constructed. What the average railroad saves in attempting to make this equipment instead of buying it of reputable manufacturers is probably lost in a single month in fuel alone to say nothing of the loss from imperfect work. A neutral flame must be maintained in heat treating furnaces or expensive dies may be ruined; in flue-welding furnaces there is a formation of scale or carbon, resulting in defective welds which are always costly and especially so when they do not develop until placed in service. Railroad mechanical officers should take the first opportunity to examine the oil-burning furnaces, making careful tests of their efficiency and replacing them wherever necessary with reliable modern equipment.

The Sulphur Springs Collision

THE COLLISION on the Missouri Pacific at Sulphur Springs, Mo., reported in the last issue of the *Railway Age*, again shows that no matter how perfectly a signal system may be working, the signals will not prevent disaster if they are disregarded by employees. Train control probably would have prevented this accident. However, if other conditions had been different this accident might not have occurred. It is of these we speak, rather than of train control, because they exist on other roads in automatic block signal territory and steps should be taken to remove these “potential danger points.”

Trains in the territory where this accident occurred are operated under two systems, one consisting of the time table, train order and telegraph or telephone, and the other the automatic block signal and interlocking system. The train order signal at Riverside, Mo., is connected into the automatic signal circuits so that when it was displayed for train No. 4 on the evening of the accident it caused the automatic distant signal to assume the “caution” position. This distant signal thus gives a caution indication when the train order signal is displayed, and also when its home automatic signal indicates “Stop” or when both the automatic home signal and the train order signal give their respective indications. One system is tied into the other.

This particular condition may account for the engineman on No. 4 running the home automatic signal, which is located around the curve 1,378 ft. in advance of the train order signal. The engineman, slowing down to about 25 m.p.h. to pick up the “19” order, may have assumed that the distant signal was at “Caution” because of the order board, and thinking No. 32 was out of the way may have been busy reading the order and passed the home automatic signal in the “stop” position without observing it. This would not, however, account for his disregard of the distant signal, which was located approximately 2.5 mi. north of the home signal at Riverside, and also of the northbound home signal at the point of the accident.

While the connecting in of train order signals to the automatic block system is considered good practice, in the light of this accident it would appear to introduce a dangerous condition, particularly when signals are located as in this case. Why is it necessary to retain two systems? It would seem that in automatic signal territory the train order signals at stations might well be a pair of home automatic signals in which their O-45 deg. control circuits are broken through a switch in the operator's office. This would enable the operator to control their indication when an order is to be delivered, and when there were no orders or the office was closed these signals would perform their function as part of the automatic signal system. It is because of the above conditions that the question is raised as to the necessity for the continued use of a double signal system, since one system can be made flexible enough to meet all requirements of train operation by signals.

In this connection it may not be amiss to quote from an editorial entitled “Is a Double Signal System Necessary?” which appeared in the *Railway Age* of April 1, 1921, in connection with the Porter, Ind., accident. The quotation follows:

“Each system is largely independent of the other and progressive managements are now directing their efforts towards the co-ordination of the two into one well rounded system. It is realized by operating officers and signal engineers that many ‘potential danger points,’ such as the one at Porter, Ind., exist and they realize further that ‘something’ should be done to eliminate this condition.

“‘Something’ will be done when the railroads conclude that one flexible system is desired—not one superimposed on the other. It is difficult and sometimes unwise to change

from old established practices too rapidly, but if progress is to be made along any line old practices must give way to new. Railroad officers can well consider the advisability of requiring the automatic block signal system to be self-contained and so complete as to meet all signal requirements. In this way they will obtain greater and better operating results on the initial investment made. The proper co-ordination of signal systems will also remove 'potential danger points.'

The Next Step

H. G. WELLS in "An Outline of History," discussing the Prussian spirit shown in the world war, makes this statement. "A teacher, a professor, who did not teach and preach in and out of season, the racial, moral, intellectual and physical superiority of the Germans to all other peoples, their extraordinary devotion to war and dynasty, and their inevitable destiny under that dynasty to lead the world, was a marked man, doomed to failure and obscurity. . . Only a mind of extraordinary toughness and originality could resist such a torrent of suggestions . . . Frederick Pierce, commenting upon this in his book "Our Unconscious Mind," draws this conclusion: "Reinforce them through all the formative years with such methods and ideas as we have been describing in the quotation, and we shall have a man who may be expected to welcome war exactly as the Prussians welcomed it. To expect anything else would be blind folly from the point of view of psychology."

Let us think for a moment of what has been taking place among railroad men in this country for many years and particularly during the past five years. The propaganda which has been developed by the advocates of the Plumb Plan and the statements and editorials which have been going to the union men from their leaders and through their publications were bound to bear fruit. The present unrest and insubordination among the employees of the railroads it not to be wondered at. The situation has been aggravated by the fact that Congressional committees and the Labor Board have sat patiently listening to the most misleading and extravagant statements from the labor leaders and so-called labor experts without even challenging them or forcing the witnesses to substantiate their statements.

There is no question but what a large proportion of labor union men think for themselves and have not been in entire sympathy with the actions and statements made by their leaders, and yet dissatisfaction has not taken such form as to check the leaders or replace them.

If these conditions are allowed to continue the American railroad systems will eventually be broken down completely, with disaster to the country at large. It is high time that men with a large vision, on the railroads and in public life, should devise ways and means of offsetting malicious propaganda which has been circulated so freely among the men. This is not a simple problem. The average railroad employee is not going to read the editorials in the more thoughtful newspapers and periodicals; nor will he be apt to study treatises on economics. He must be supplied with the simple facts relating to the railroad business and his connection with it, presented in an interesting way and in language which he can appreciate and understand. He is no exception to the general public. Cartoons, pictures and the simplest kinds of charts will catch his eye and appeal to his imagination.

Educational processes of this sort are slow, but they are sure. Economists indicate that we have passed through the period of brute force (although we often revert to type, even now) into a period of competition, and that we are now entering the more advanced stage of civilization—the period of co-operation. In discussing how our citizens may be better prepared to function properly in this more advanced stage,

Pierce in "Our Unconscious Mind" makes several suggestions. Naturally he starts with the education of the children, but the same principles will, of course, meet with effective results if applied generally. Following is an example. "Two or three times a week each teacher takes five minutes at the close of the day to report the most notable example of co-operation that has come to her attention, not sentimentally, but in precisely the same spirit as mention of a soldier in dispatches. The ideal held before every child is that to win honor and esteem there must be something achieved in the way of help to another. Disputes shall invariably be settled by one or more referees."

People are thinking much in these days in terms of making regulations and laws which will prevent strikes and industrial difficulties, such as those through which we are now passing. These deal with the results and do not necessarily touch or remove the underlying causes. If we are to get real results it will be necessary to go far deeper and to lay a solid foundation which will insure permanent results. This can only be done by the most scientific, thorough and intelligent educational work among the workers, throughout the communities and in the public schools. Such efforts work slowly, but they are absolutely sure of producing real and permanent results. Is it not high time that a start was made in this direction?

Lest We Forget

ON OCTOBER 10 the Chicago, Rock Island & Pacific will celebrate the seventieth anniversary of the operation of its first passenger train. At that time special programs will be presented over the system depicting the various stages in the development of this railway from a line of less than 40 miles, traversing only 2 counties of one state to a system of more than 8,000 miles in 14 states. This development has taken place in a period of less than three-quarters of a century. In this growth the Rock Island has been typical of the roads which now form a network of transportation arteries across the vast prairie areas west of Chicago and to only a slightly less extent those of the entire United States and Canada.

Pushing west from Joliet, the Rock Island was the first road to reach the Mississippi river, building into the city whose name it carries in 1854. It reached the Missouri river at Omaha in 1869 and at Kansas City a few years later. It acquired the Chicago, Kansas & Nebraska, comprising 1,500 miles of lines in Kansas, Nebraska, Colorado and that portion of Oklahoma then known as Indian Territory, at a foreclosure sale in 1891. At later dates it also acquired control of other roads, most prominent among which were the Burlington, Cedar Rapids & Northern, and the Choctaw, Oklahoma & Gulf. The result of this era of construction and purchase is the system of today, a collection of lines aggregating over 8,000 miles, affording the sole means of transportation to hundreds of communities and a competing outlet for an even larger number.

Anniversaries such as these impress one with the newness of our transportation system. Starting from nothing, only 90 years ago it has developed into a system which comprises more than one-third of the railway mileage of the world. It has pioneered in the opening up of vast areas for agricultural and industrial development. It has made it possible for the Kansas farmer to dispose of his wheat in the markets of the world and for the dweller in the Eastern cities to eat Oregon strawberries.

In the enjoyment of these advantages of our transportation we are prone to lose sight of the fact that they have been made possible by the courage and daring of the early pioneer who more frequently than otherwise lost more than he gained. Few of the early railways in the West escaped receivership

and reorganization with the resulting sacrifice by the original owners of a large part of their investment. The difficulties experienced by the lines which are now the main arteries of the Rock Island system in the Southwest were typical of the roads of this entire area. In thinking of the railways of today we should not forget the pioneers who laid the foundations for the present system and the fruits of whose courage we are enjoying.

Arbitration or Anarchy?

THE COAL MINERS' and railroad shop employees' strikes have caused many people not ordinarily prone to pessimism to consider seriously the question whether this country is drifting toward anarchy. It may be predicted with some confidence that this will not be the result of these particular strikes, although there are persons in high places who have expressed fear that even they may produce conditions that will cause a revolution. It is probable that these strikes finally will be settled in some way. But the controversies which caused them and incidents which have resulted from them are sufficient to make even those ordinarily disposed to be optimistic to regard the future with grave apprehension.

Developments which preceded and which have occurred during these strikes disclose differences between the employers and the labor unions which are fundamental and irreconcilable. Some of the points regarding which developments before and since these strikes began have disclosed irreconcilable differences between employers and employees in large scale industries are the following:

First, labor unions insist upon national negotiations and action. Their leaders do this principally because they believe that negotiations and action by the labor unions on a national scale will give them the maximum possible power to enforce their demands. Employers oppose national negotiations and action because they probably do give labor unions the maximum possible power and because employers naturally are unwilling to agree to a policy having the purpose and effect of giving labor unions so much almost irresistible power.

Second, the labor unions demand wages which are based upon estimates of the needs, real or imaginary, of their members and their families. Employers will not and, in fact, cannot grant what the labor unions demand, because under present conditions industry cannot produce enough to give the members of the labor unions what they demand.

Third, in seeking the maximum possible power and in making demands which it is economically impossible to grant, some of the largest and most important labor unions are trying to overthrow the present system of private ownership and management of certain industries and to replace it with some such system as the Plumb plan. Employers engaged in private industry never will long grant demands which they know are made with the purpose of overthrowing private ownership and management, and the granting of which will tend to produce that result.

Fourth, some of the largest and most important labor unions refuse voluntarily to arbitrate any controversy, and claim for themselves the right, when a government arbitration body such as the Railroad Labor Board makes an award, to accept it or to reject it and strike according to whether they like it or not. They maintain that the right to strike is a fundamental right of man. At the same time that the shop employees' unions are striking against an award of the Railroad Labor Board their leaders, with the greatest inconsistency, exaggerate and denounce the comparatively few instances in which the railways have failed to carry out orders of the board. The railways maintain that all important controversies between them and their employees should be submitted to arbitration, and of course never can agree that it is

a crime for the railways to disregard an award of the Labor Board merely the exercise of a fundamental human right for the employees to disregard and strike against an award of the board.

Fifth, the labor unions maintain that when their members strike even against a decision of the Labor Board they retain unimpaired their rights to the jobs at which they have quit working, and that this carries with it the right on their part to prevent other men from taking these jobs, and the right to be restored to them when the strike is settled. Neither the railways nor any other class of employers ever can accept this principle, because its acceptance necessarily would give men disposed to work almost no incentive to do so, and men disposed to strike every incentive to do so, and render victory for the strikers practically certain in every strike.

Sixth, the labor unions claim for their members the right to put pickets at every point affected by a strike, and to have the pickets use every form of "persuasion" to keep men from working. In every important strike such picketing results in violence. The pickets may be the authors or the victims of the violence, but experience shows that where picketing is done violence is practically inevitable. Violence results in most communities in local police, United States marshals or troops being called to suppress and prevent it. In the shopmen's strike, not only the strikers but employees in train service who sympathize with them, have resented the use of armed guards to protect men who want to work, and in some cases have struck in plain violation of their contracts with the railways rather than work where there are armed guards. But employers never can agree to the labor union theory that they should not seek police or military protection for property and men who are willing to work, for this, like agreeing to the labor unions' theory regarding seniority, would be to concede victory to the strikers from the very start.

Since such irreconcilable differences exist between certain classes of employers and labor unions, it is plain that strikes in large scale industries with resulting assaults, murders, destruction of property, and most serious interference with business of all kinds, are inevitable, unless the public intervenes to prevent them.

It seems evident, therefore, that the public must make a definite choice in the comparatively near future between compulsory arbitration of labor disputes in large industries, on the one hand, and strikes having the most serious possible consequences, on the other hand. It must require the parties to these great controversies to submit their differences to determination by bodies on which representatives of the public hold the balance of power, and then compel both sides to accept the awards, or prepare for the inevitable outcome of even worse strikes than those now in progress, and that is anarchy. The great question presented to the people of the United States by the coal strike and the shopmen's strike is—Arbitration or anarchy?

It looks very much now as if in the long run the question will be decided in favor of anarchy. Employers in the railroad and some other industries are just as inflexibly determined not to yield to the labor unions as the labor leaders in these industries are to force them to yield, and unless the public will step in and for its own protection exert for industrial peace a power greater than that of either side the results in the long run will be appalling.

It may reasonably be asked, if the public, through the governments, local, state and national, will not intervene either to prevent or punish such outrages and crimes as have been committed in connection with the present strikes, how can it be hoped that it will establish a policy of compulsory arbitration and enforce the resulting awards? This cannot reasonably be hoped for unless the people of the United States can be aroused to an understanding of the significance of such developments as strikes in defiance of awards made by a government body, wholesale murder such as occurred at

Herrin, Ill., and sympathetic strikes in violation of solemn contracts against the use of police and military for the protection of property and lives, even where property already has been destroyed, and people, even including public officials, already have been shot. The difference between such a situation as already exists and that of absolute anarchy is merely one of degree and not of kind.

A man must be very prejudiced or very blind who does not see that unless the public through its government, does forcibly intervene the struggles between employers and labor unions are going to grow more extensive, more bitter and protracted, more lawless and ruinous, and that only enforcement of the principle of arbitration and enforcement of the laws against violence, whatever its pretext or purpose, can save the country from drifting sooner or later into a condition of affairs far worse than that which exists at present.

Labor Union Theory of Seniority

RAILWAYS having most of mileage in the country have accepted President Harding's proposal that the striking shop employees shall be put back to work and the seniority issue submitted to the Railroad Labor Board for determination subject to certain conditions. One of these is that the status of men now at work shall not be disturbed until the seniority question is settled. Another is that former employees who have been proven guilty of violence shall not be taken back. Railways having about 57,000 miles of line have agreed to take strikers back and submit the question of seniority to the Labor Board subject to the foregoing conditions, and also to the further condition that they and their employees shall not be deprived of the right of review by the courts of any decisions of the Labor Board which may affect agreements now in existence between the railways and their employees.

The labor unions composed of the strikers still maintain their stand that the strikers must be taken back with their full seniority rights. In this position they are given the backing of other railway labor unions, and especially of the train service brotherhoods, whose heads have been trying to mediate between the railways and the strikers. The principle upon which the labor leaders base their claim that the strikers should be taken back to work with their full seniority rights has been stated as follows by L. E. Sheppard, president of the Order of Railway Conductors: "The real issue as we see it is the status of the men on strike. We hold that they are not dismissed from the service—that they have not resigned. They are awaiting a settlement of their differences and all rights as employees are suspended, so to speak, contingent on whether or not they go back to work."

This means in substance that if an organized body of workers leave their jobs in concert for any period, however long, to compel an employer to grant demands that the strikers have made, they retain the same rights to their positions that they had before they quit work. It means, in other words, that they own their jobs as they may own property, and that like the owner of any other property they do not lose their ownership of them unless they abandon them with the avowed purpose of never trying to recover them.

Of course, this principle is the direct negation of the principle of private property as established and recognized by the laws of every country in which private property exists. It is an economic impossibility for one man or group of men to own a manufacturing plant or a railway shop, and for another group of men at the same time to own the jobs in the plant or shop. Even when the owner of a plant makes a contract with an employee the law does not give the employee the ownership of the job. The employer may discharge the employee and thereby takes the job from him at any time.

The employee may sue the employer for any damages caused him by the violation of the contract, but no law will require the employer to restore the job to the employee upon the theory that the job is the employee's property.

If the labor leaders' claim is the result of any process of reasoning, the conclusion they have reached, and which Mr. Sheppard has stated, must be that the striking employees have a *moral* right to recover their jobs with all the rights and privileges associated with them before they left them. There is no question whatever that an employee has a moral right to any position in which he does his work faithfully and well and in which the financial circumstances of the employer enable the employer to retain him. But do employees, who leave their jobs in concert for the express purpose of stopping the operation of a plant and inflicting such injury upon the employer that he will be compelled to grant their demands, retain the moral right to be restored to their jobs? Do they retain moral rights to their former jobs superior to the rights to these jobs of men who stay at work or who go to work during the strike? How can men who take concerted action for the avowed purpose of so injuring an employer as to compel him to agree to their terms have a moral right to the same kind of treatment from the employer that he would have been obligated to give them if they had not concertedly taken steps to injure and coerce him? The principle stated by Mr. Sheppard is an ethical absurdity.

The simple truth is that lockouts and strikes are a form of warfare. When nations are at peace they have certain moral claims upon one another. When they go to war they cease to have any moral claims upon each other except that in carrying on warfare they should not resort to inhuman methods.

When their representatives sit down after the struggle to make peace they make it on the basis of the status which has been created by the struggle. The same thing must be recognized as true of lockouts and strikes. They disrupt all moral obligations which each party owed to the other before the strike or lockout. If neither party has won a decisive victory the settlement is a compromise in which each party concedes what it chooses to or must. If either party has won a decisive victory it dictates the kind of settlement which it believes will best promote its own interest in the long run.

No group of employers ever can or ever should accept the principle stated by Mr. Sheppard. For the benefit of all concerned, including especially the public, arbitration should be substituted for lockouts and strikes. If, however, lockouts and strikes are to occur the principle must be recognized that when they occur all relations between the employers and employees involved are dissolved, and that when the struggle is terminated, whether by agreement or the victory of one side, the new relations established will be similar to or unlike those which existed before, according to the outcome of the struggle.

To recognize the principle that men may strike at any time they like about anything they please without thereby losing anything except their wages while they are out would be to recognize a principle which would tend to cause employees to take a holiday every time they felt like it and to render it impossible to conduct any business with success. To the successful conduct of any business it is essential that the management should be able to make contracts covering long periods of time and to plan its operations so as to fulfill these contracts. Frequent interruptions of operations will render it impossible for any management to make and carry out plans covering a long period.

Acceptance of the principle stated by Mr. Sheppard would, in the long run, be as ruinous to the workers as it would be to the employers, because the welfare of the workers depends as much as that of the employers upon continuous operation and successful management.

Letters to the Editor

[The RAILWAY AGE welcomes letters from its readers and especially those containing constructive suggestions for improvements in the railway field. Short letters—about 250 words—are particularly appreciated. The editors do not hold themselves responsible for facts or opinions expressed.]

Vacuum Brake Tests on English Freight Trains

DERBY AND DONCASTER, England.

TO THE EDITOR:

In the article which appeared in your number dated April 1, 1922, pages 823, 824, and 825, on the tests of vacuum brakes described in our paper before the Institution of Civil Engineers, it is pointed out that the retarding effect of the vacuum brake compares unfavorably with tests with the Westinghouse brake made in America as far back as 1887.

We wish to point out that the tests on the Great Northern Railway were in no way intended to ascertain the shortest distance in which a freight train fitted with vacuum brake could be stopped; the object of the tests was to ascertain whether satisfactory stops with existing equipment could be made with what are, in this country, long freight trains consisting of up to 100 wagons. The wagons were not fitted with special apparatus to give the highest braking effect and the results, therefore, should not be compared with the Westinghouse brake as regards stopping distance.

As a matter of fact, tests made in this country and also on the continent, indicate that long freight trains fitted with the vacuum brake stop in as short a distance as trains fitted with the Westinghouse brake.

(SIR) HENRY FOWLER,
Chief Mechanical Engineer, Midland Railway.

H. N. GRESLEY,
Locomotive Engineer, Great Northern Railway.

Specialists Needed for Car Repair Work

CHICAGO.

TO THE EDITOR:

The methods of repairing freight cars, both wood and steel, as used on the railroads are in most cases extremely inefficient. The principal reason is lack of knowledge on the part of the men in charge who are usually loaded down with details and have so many duties that they cannot supervise the work properly. These are the conclusions I have reached after many years in the car department, based on personal observations in a large number of shops.

There are thousands of men supervising freight car repair work at salaries from \$200 per month up, working under superintendents of motive power who in most cases have no first-hand knowledge of car repair methods. Railroads are paying high salaries to general officers to secure efficiency and conduct transportation at a profit, while some of the men on the mechanical staff are allowing hundreds of thousands of dollars to slip through their fingers on account of inefficient methods, lack of proper organization of freight car repairs, lack of proper knowledge of what appliances to use to get the best results and most important of all, lack of ability to recognize wasteful acts or methods, or knowledge of how to correct them if recognized.

There is a field for specialists or experts in the repair of

freight cars, especially steel cars. By this I mean, men who thoroughly understand the scheduling of classified repairs on both steel and wooden freight equipment as well as the building of new equipment; men who actually know just what shop tools are necessary for the maintenance and repair of cars, who will not waste thousands of dollars for facilities where they are not needed; men who can say positively how to better conditions and output on this class of work—in short, men who have mastered the subject of car repairs.

It would pay the railroads to engage men who have the experience and knowledge to effect savings that are possible in car repair work, using such men in an advisory capacity. It is probably not necessary to make the position permanent but it would be necessary to pay what the service rendered is worth. In the past, railroads have not been willing to do this and have kept the wages of the supervisory forces at a low level. This is the reason that most of the best men in the car department enter the employ of the car builders. It probably also explains why the car builders can handle the work more cheaply than the railroads. The field is so large and the present lack of efficiency is so great that there should be a place in the railroad organizations for a man who has the ability to handle freight car repair work economically. Can the railroads be made to recognize the true value of the services of such men?

M. C. B.

Talk Money to Employees

HAILEYVILLE, OKLA.

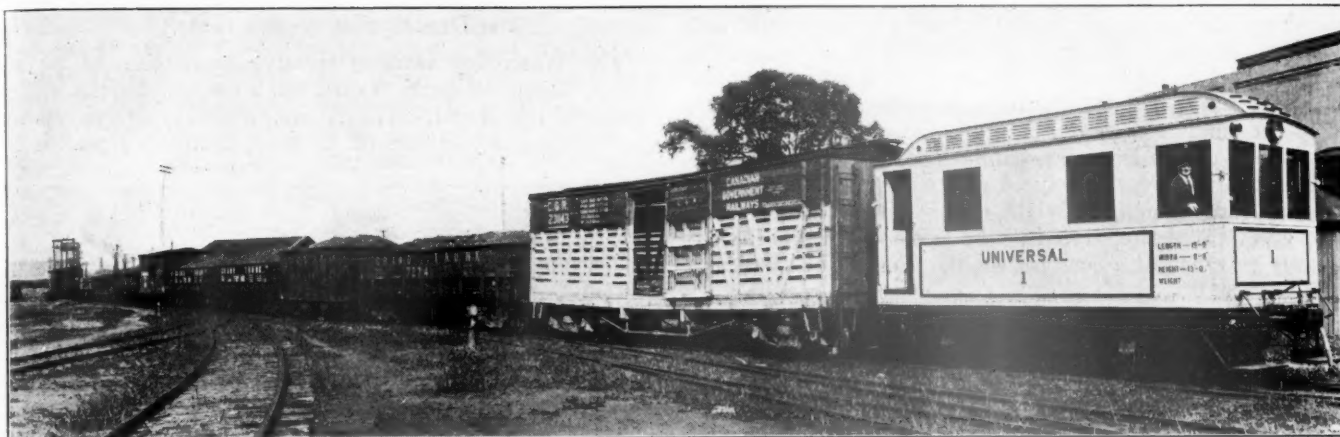
TO THE EDITOR:

The article by Grant Gibson, on the above subject, in the *Railway Age* of July 1 is certainly worthy of serious consideration by those who are responsible for expenditures on the railroads. There are very few men who work in the offices or shops, or on tracks or bridges, or in any department for that matter, that know the value of the material, tools, etc., with which they work. From a train dispatcher's standpoint, we doubt extremely if there are ten per cent of the train dispatchers who know just what the fuel on the engines costs and how much coal it requires to handle a ton of freight one mile; or what the running repairs of a locomotive per mile amount to in dollars and cents. How many of them stop to figure how much wages in money is lost by a gang of men with a work train when the work train is standing on the side track waiting for trains to pass, some of which are way off the time the work train had on them?

How much is lost in money for switch engines standing still in the yard waiting for delayed passenger trains which are off the time given the yard engines? Does the operator at a small telegraph office stop to figure how much money is lost by his causing a train to stop at his station by reason of a "19" order which he was slow in trying to make delivery? Does the agent stop to consider how much money he has lost to the company because he was late in sending in certain reports, thereby causing the division office to wire or write him for them? Sometime ago it was calculated that each letter written cost about 18 cents. We believe it would be well for the railroads to do a little more talking along the line of money and make up a few statistics to be posted in front of many employees, and supervisors for that matter, to call their attention to just what their carelessness costs the company in dollars and cents. An honest and conscientious employee knowing the facts will try to improve.

J. L. COSS,
Train Dispatcher, Rock Island Lines.

THE SOUTHERN PACIFIC in 1921 distributed throughout the United States and Europe 6,200,000 folders, maps, pamphlets, and other pieces of advertising matter.



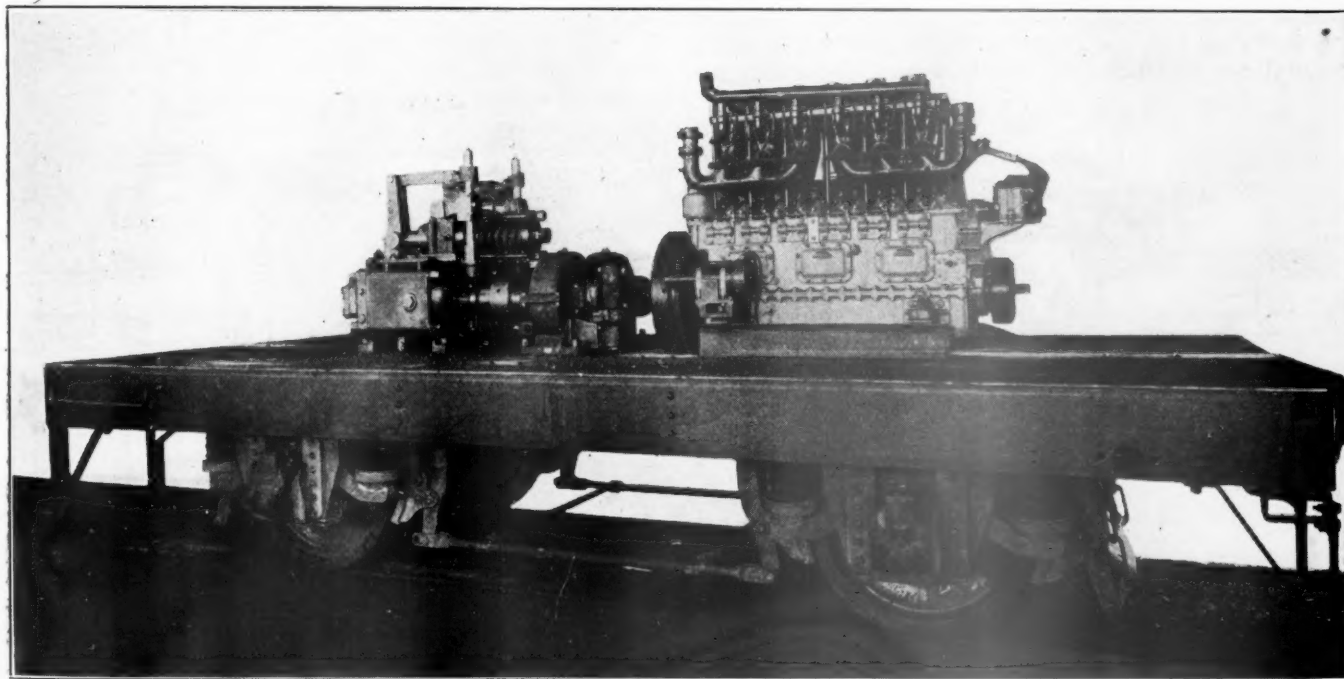
Hauling 14 Cars Weighing 645 Tons with a 150-Horse Power Gasoline Locomotive.

Gasoline Switching Locomotive with Hydraulic Drive

Universal Oil Transmission Governs Speed and Direction and Gives Remarkable Flexibility of Control

ONE OF THE MOST promising developments in the application of the internal combustion engine for railroad motive power is a gasoline switching locomotive designed by John Robson, chief engineer of The Universal En-

is supplied by a 150-hp., six-cylinder Ricardo gasoline engine, the engine and transmission being arranged to give a maximum tractive effort of 12,000 lb. and a maximum speed of 12 miles an hour. The locomotive is intended for switch-



Locomotive with Power Plant and Transmission in Place, Before Cab Has Been Applied

gineering Corporation, Montreal, Can., and recently built under his supervision at the plant of the Canadian Car & Foundry Company, Montreal. The most notable feature of the equipment is the arrangement of power transmission and speed control. This is effected by a Waterbury hydraulic variable speed gear, built in this country by the Waterbury Tool Company, Waterbury, Conn., which gives any speed from zero to the maximum in either direction without steps or gradations and without varying the speed or direction of rotation of the engine. The power to drive the locomotive

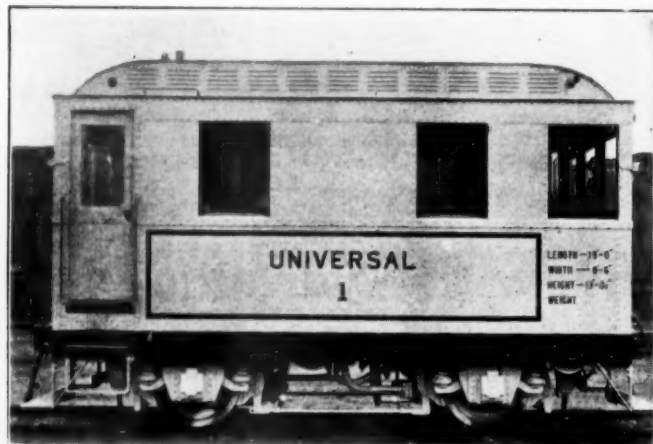
ing service and has two independently driven axles. It is 19 ft. long and weighs 53,000 lb.

Advantages of Hydraulic Transmission

In practically every design of railroad equipment using internal combustion engines built heretofore, the transmission of power has been effected by shifting gears and clutches, or by electric generators and motors. Neither of these methods is entirely satisfactory. While gasoline-electric equipment affords the necessary flexibility, the control is compli-

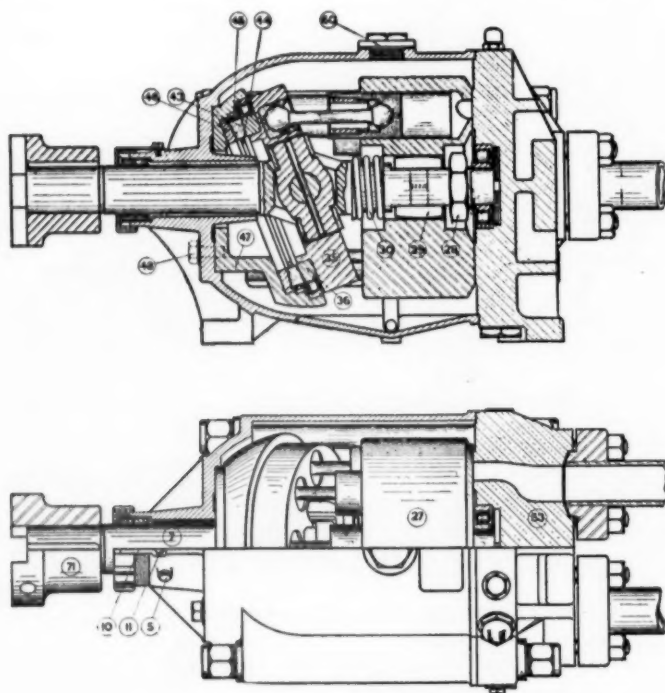
cated and the motors and generators increase the weight very greatly. Mechanical devices for changing speed by shifting gears cannot be satisfactorily designed for any large number of speed ratios and this form of transmission can be used only for small size engines due to the limited amount of power that can be transmitted through a friction clutch.

The hydraulic variable speed gear used in this locomotive is comparatively light in weight, easily and simply controlled and gives any desired speed of the locomotive while the engine is governed at a constant speed. Control of speed and



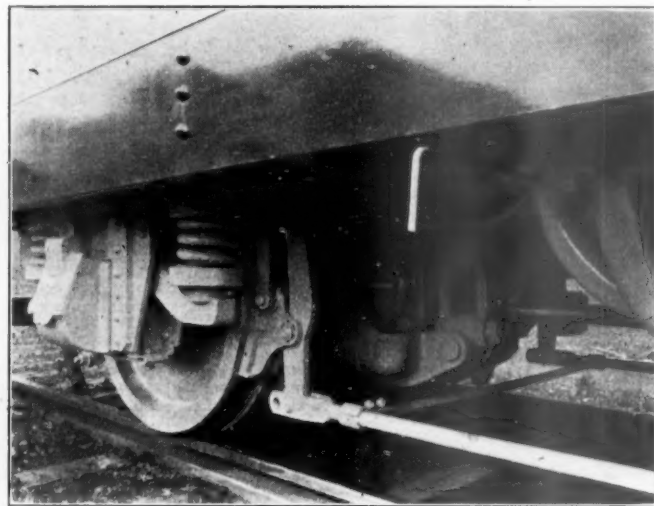
In Appearance the Locomotive Resembles a Small Electric Car

direction can be effected with a minimum of effort on the part of the operator regardless of the load on the locomotive, the flexibility and ease of control being such that complete reversal can be effected as quickly as desired without any



Description of the Gear

The Waterbury variable speed gear consists of an oil pump, designated as the A-end, and a hydraulic motor, designated as the B-end. The A-end, which is driven by the gasoline engine, delivers oil to and receives it from the B-



A View Under the Body Showing Hydraulic Drive and Suspension

end, the direction of flow and the amount of oil being controlled by a regulating device. The B-end rotates at any speed up to that of the A-end and in either direction, de-

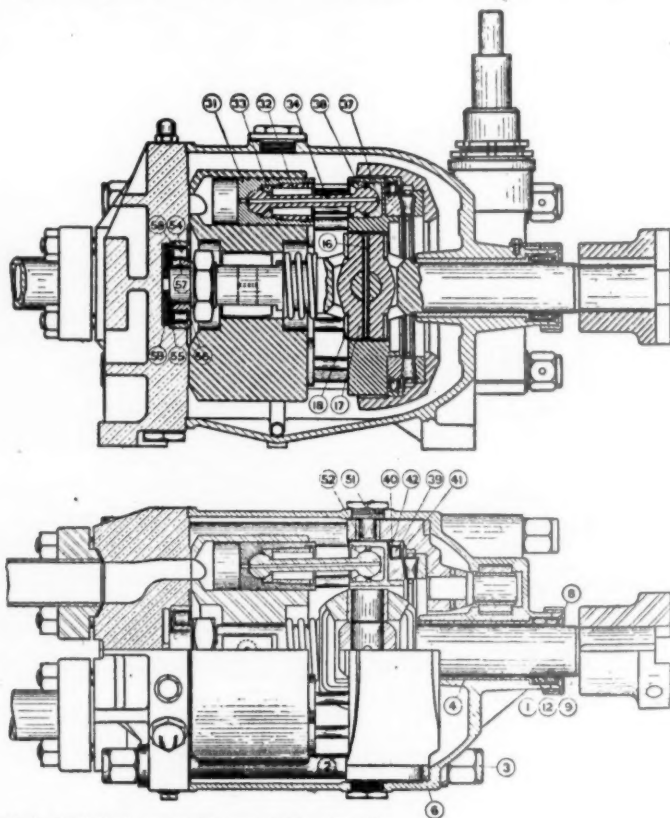


Fig. 1—Sections Through the Pump Unit (Right) and Motor Unit (Left)

undue peak load on the engine, thereby avoiding excessive stresses in the working parts. By the use of an automatic pressure control device the speed of the locomotive is regulated by the drawbar pull entirely independently of the operator in such a manner as to prevent overloading and possible stoppage of the engine owing to stalling.

pending upon the quantity and direction of delivery of the oil it receives from the A-end.

The construction and operation of the gear can readily be understood by referring to Fig. 1. In this drawing the driven shaft of the A-end, which receives the power from the gasoline engine, is shown at the extreme right hand side while

the driving shaft of the B-end is at the extreme left. A cylinder barrel (27) is keyed to the inner end of each shaft. Each barrel has nine cylinders parallel to the shaft and fitted with pistons. When the barrels revolve, their inner faces slide on the valve plates (53), each of which has two ports, the ports in the A-end being connected to those in the B-end by

the shaft their planes of revolution may be at any angle with the shaft provided by the setting of the roller bearings on which the socket rings revolve.

In the B-end of the gear the socket ring runs in an angle box secured in the end of the case and making a fixed angle of 20 deg. with the shaft. Thus as the shaft, the barrel and

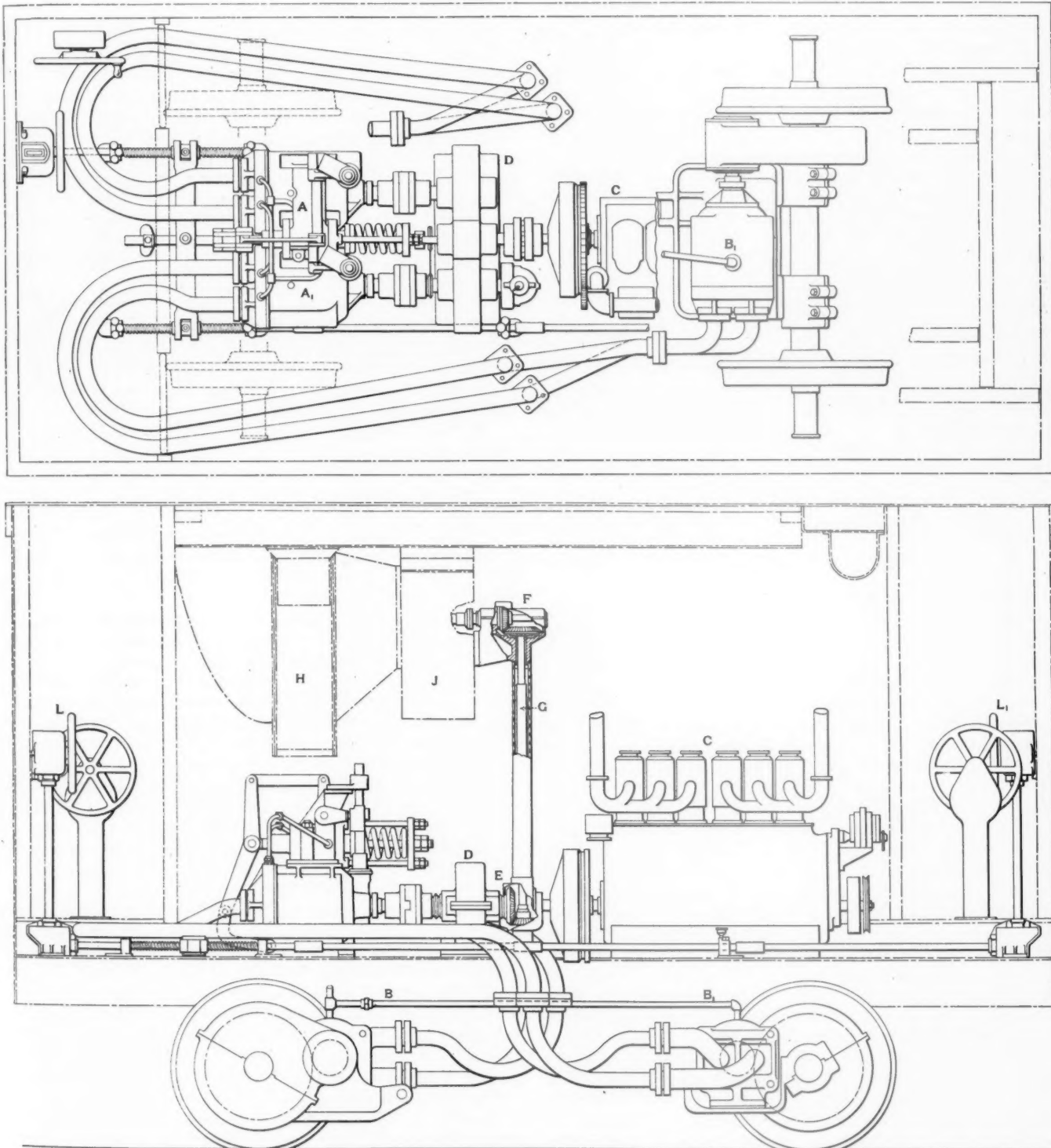


Fig. 2—Plan and Elevation of Gasoline-Hydraulic Locomotive

pipng. The cylinder ports in the barrel faces register with semi-annular passages or ports in the valve plates, except at the bridges at the top and bottom of the plates. The connecting rods have one end secured in the piston and the other in the socket ring (35). The socket rings are connected by universal joints with the shaft so that while they revolve with

socket ring revolve in the B-end, the pistons will have a reciprocating motion with a constant stroke. In the A-end the angle box is hung on trunnions and may be adjusted to any desired angle while the gear is running by means of the control shaft. If the angle box in the A-end stands in the neutral position at right angles to the shaft, the pistons are

carried around with the cylinder barrels but have no reciprocating motion. No oil is therefore taken from or delivered to the passages in the valve plates. If the tilting box is inclined by moving the control shaft, the pistons begin to reciprocate, the stroke depending on the angle between the socket ring and the axis of the shaft. Every cylinder during one half of the shaft's rotation is drawing in oil from one of the passages in the valve plate which it carries over and delivers into the other passage during the next half of the shaft's rotation.

The oil from the A-end is forced into one of the passages of the valve plate of the B-end. The cylinders of the B-barrel in communication with this passage make room for the oil by sliding back from the valve plate, but they cannot do this without forcing their respective sockets in the socket rings farther from the valve plates. This can only be done by turning the socket ring as a whole in its inclined plane in the angle box. While the pistons facing the pressure passage

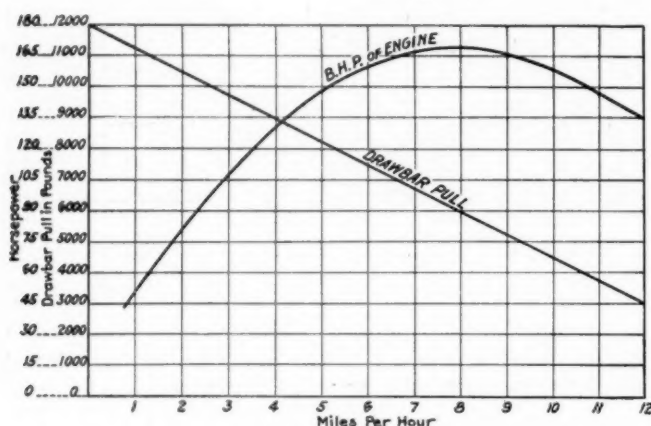


Fig. 3—Drawbar Pull and Brake Horsepower Curves

of the B-valve-plate are receding to make room for the incoming oil and so imparting rotation to the B-shaft, the pistons facing the no-pressure passage are moving toward the valve plate and delivering oil into the respective cylinders of the A-barrel. Since the receiving capacity of the B-cylinders is constant and the delivery capacity of the A-cylinders is varied at will by turning the control shaft, the speed of the B-shaft is correspondingly varied. With the engine running at constant speed the speed of the B-end depends upon the angle which the socket ring in the A-end makes with the shaft, while the direction in which the B-end revolves is governed by the direction in which the socket ring in the A-end is moved from the neutral position.

The efficiency of this type of transmission is high, ranging from 68 per cent at 25 per cent of normal speed to 82 per cent at full speed. The combined A- and B-ends weigh less than 25 lb. per horsepower transmitted. The pressures on the sliding surfaces are largely balanced so that little wear takes place and the pistons have long bearings in the barrel. In spite of the high pressures carried, leakage is negligible.

The appearance of the completed locomotive and the arrangement of the engine and hydraulic speed gear are clearly shown in the photographs. The operation will be readily understood by reference to the plan and elevation drawings.

The power for the locomotive is obtained from a six-cylinder Ricardo gasoline engine *C* with pistons of 5 $\frac{5}{8}$ in. diameter and 7 $\frac{1}{2}$ in. stroke, capable of delivering 150 brake horsepower when running at a normal speed of 1200 r.p.m. This engine drives through a double-helical reduction gear *D*, two size 50 pump units, *A* and *A1*, at 345 r.p.m. From the valve plates of these pump units, piping conveys the oil which is used as a transmission medium to two size 50 speed gear motor units, *B* and *B1*, each of which is connected by spur gearing to one of the driving axles of the locomotive.

The casings of the speed gears are connected by piping to a common oil reservoir placed in a convenient position on one of the bulkheads of the engine room, the oil in this reservoir being subject to atmospheric pressure only. Flexible couplings are used between the gasoline engine and the reduction gears as well as between these gears and the pump units of the speed gear in order to allow for any vibration or springing on the framing of the locomotive.

The engine is cooled in the ordinary manner by means of a tubular radiator and fan, the latter being driven from an extension of one of the reduction gear shafts through bevel gears, *E*, *F*, and the vertical shaft *G*, the radiator *H*, and fan *J*, being suspended from the roof of the locomotive, where both the inlet and outlet passages for the fan are provided. The motor units, *B* and *B1*, of the Waterbury speed gear, together with the housing for the spur reduction gear between these units and the axles, are carried on cradles with link and swivel suspension to the under side of the frame-work, as clearly shown in one of the photographs. In this way vertical movement of the axles is provided for without interference with the gearing.

The control of speed and direction is effected by means of either of two hand wheels, *L* and *L1*, placed in the driving compartment at each end, one man only being required to operate and control the locomotive, the speed of which is governed automatically by a hydraulically operated control gear, which acts independently on the control shafts of the pump units as soon as the drawbar pull exceeds a predetermined amount. By the action of a plunger and spring, the stroke on the pistons is regulated in inverse ratio to the oil pressure and in consequence it is not possible for the operator to overload the engine. The pressure range through which the control is designed to act, is from 300 lb. up to 1,200 lb. per square inch, so that on very short piston strokes a torque of approximately four times the normal can be obtained on the axles of the locomotive.

Hand operated brakes of standard pattern are provided and work by a hand wheel placed in each compartment, these brakes being used only for emergency purposes as the stopping and starting, as well as acceleration and deceleration are controlled entirely through the speed gears. For use in coupling the locomotive with freight cars, standard air connections and cylinders are provided for operation in the usual manner from the driving locomotive.

The curve illustrated in Fig. 3 shows the relation between drawbar pull and speed up to 12 miles an hour with the control hand-wheel set for full stroke on the pump units of the hydraulic speed gear, the actual stroke, speed and horsepower of the engine being regulated by the automatic adjustment of the pressure control piston.

In actual service the locomotive has shown remarkable flexibility, which is particularly advantageous in switching service where high starting tractive effort and rapid acceleration are required. The locomotive may be started under a dead load of any amount without overloading the engine. Three turns of the hand-wheel from the neutral position will bring the locomotive up to its full speed. In stopping, the locomotive is gradually brought to a standstill by turning the control shaft to neutral, and in this position the B-end is positively locked against motion in either direction.

Several trials have been made at the plant of the Canadian Car & Foundry Company which have been entirely satisfactory. The locomotive exerts a tractive effort of 12,000 lb. at starting and 3,000 lb. at 12 $\frac{1}{2}$ miles an hour. On level track a load of 645 tons has been handled readily. In one trial the locomotive took three cars weighing 150 tons up a four per cent grade, stopping at the steepest point and starting again under full load without difficulty. The Universal Engineering Corporation intends to apply the variable speed hydraulic gear to a locomotive of similar type designed for passenger service and also to high-capacity passenger cars.

Commission Orders Increase in Divisions for K. C. M. & O.

WASHINGTON, D. C.

THE INTERSTATE COMMERCE COMMISSION in a decision made public on August 14 has ordered that the divisions received by the Kansas City, Mexico & Orient out of joint rates maintained with 13 of its principal connections shall be increased on and after September 15 by amounts ranging from 10 to 30 per cent of the divisions now received by the connecting lines. The decision was rendered by Division 4 of the commission without dissent and is the result of an application filed by the receiver of the Orient and its Texas company for an increase in divisions and the diversion of traffic to the road.

The Orient alleged that its revenues were insufficient to enable it to pay operating expenses, taxes and a fair return on its property or to enable it to perform properly its function as a common carrier and contended that this condition can be remedied only by increasing its divisions or by increasing, through changes in routing, the amount of traffic it handles as an intermediate carrier. The request for changes in routing is before the commission as a separate proceeding. A series of conferences between representatives of this road and its connecting lines and the state authorities was held under the auspices of the Interstate Commerce Commission in July, at which efforts were made to find an immediate remedy for the condition of the road, but no result of these meetings had been announced prior to the issuance of the commission's decision.

Wanted Sufficient Relief to Continue Operation

The commission in its report says that the Orient asked only a sufficient measure of relief to enable it to continue operation and made no request for return upon the investment. The road has shown deficits each year since 1916 and, the commission says, the enormous increase commencing with 1918 is apparently due both to decreased revenues and largely increased expenses. It was claimed that the loss of revenue during the period of federal control was largely due to changes in the routing of through traffic and that since the termination of federal control the former conditions have not been restored. The record indicates that a substantial proportion of the through traffic of the Orient was received from the Southern Pacific and that this carrier reduced its deliveries on account of alleged unsatisfactory service of the Orient. The report points out that the Orient serves an area of about 23,272 square miles with a population of approximately 500,000 and a property value exclusive of cities and towns of \$204,250,000. It refers to a statement by the commission on the application of the Orient for a loan that it is not disputed that the Orient system, or at least that part within the United States, is of essential importance in meeting the transportation needs of the public in the territory which it serves, and adds that nothing appears of record in the present case to justify any different conclusions.

The deficits in railway operating income for 1920 and 1921 were \$1,407,106 and \$860,740, respectively, and, according to the estimate of the Orient, the deficit for 1922 will amount to \$1,590,213. For 1921 interest accruals amounted to \$514,665, of which only \$150,000 was paid, this being applicable to a loan of \$2,500,000 to the government. No allegation of inefficient operation appears in the record against the Orient or any of the respondent connecting lines.

Various methods of increasing its revenues had been suggested. Application has been made to the Railroad Labor Board for authority to reduce wages and change rules, which, if granted, will result in an estimated saving of about \$325,000. Increase in all rates is not considered feasible for the present for the reason that it is believed that sufficient tonnage would be given to competing lines by the shippers

to offset any increase in revenues from higher rates and for the further reason that shippers on the Orient cannot compete with shippers on other lines in the same territory. However, the report says, this matter is receiving consideration. Increasing the volume of traffic handled by the Orient, the report says, would automatically increase its revenues and the commission believes this can be accomplished by designating this line a "differential" route on certain commodities. For instance, a differential of 1 cent per 100 pounds under the established rate on grain to Gulf ports should attract a considerable volume of tonnage. The report says this question should be made the subject of conference between the Orient and its connections and the necessary steps should be taken to accomplish this object. Five of the connecting lines are said to be favorable to the adoption of a plan of differentials.

Details of the Decision

The report continues in part as follows:

The gross revenue of the Orient per equated ton-mile is greater than that of 9 of its connections, and its earnings per car-mile are substantially smaller than 11 of the 13 connections, while the earnings per train-mile are in each instance materially less, thus evidencing a smaller and less profitable train and car load, the usual incident of a light traffic. The operating expenses per equated ton-mile are greater than those of any connection except two small roads, namely, Abilene & Southern and the Clinton & Oklahoma Western, and its expenses per car-mile are substantially greater than those of the nine larger roads, while the expenses per train-mile are in six instances materially less. The general result is that while the Orient sustained a deficit in its net railway operating income of 69 cents per train-mile, all of its connections received incomes ranging from 30 cents per train-mile in the case of the Galveston, Harrisburg & San Antonio to \$1.84 per train-mile in the case of the Fort Worth & Denver City.

In other calculations the results as distinguished between freight and passenger traffic have been separately considered based upon an allocation in accordance with our plan to include all operating revenue accounts. The operating ratios of the carriers concerned in respect of all revenue received show that the freight operating ratio is less than the passenger operating ratio with exception of the Atchison, Topeka & Santa Fe, Fort Worth & Denver City, St. Louis-San Francisco, and the Texas & Pacific, for which the freight ratio is higher. In the case of the Fort Worth & Denver City, Missouri, Kansas & Texas of Texas, and Midland Valley, the two ratios are substantially equal, which is also true of the combined result of the 11 major roads used in the calculations. It also appears that the freight ratio of the Orient (1.0791) is approximately 141 per cent of the average freight ratio of the other connecting lines (0.7663) while the passenger ratio of 1.3518 is approximately 175 per cent of the average passenger ratio of (0.7718) the 11 major connections.

The disparity of 41 per cent in the case of freight service and 75 per cent in the case of passenger service would seem to indicate that the passenger fares and freight rates and divisions accorded this carrier are not sufficient to meet even the maintenance, traffic, transportation, and general expenses properly to be charged against either the freight or passenger traffic, to say nothing of taxes, equipment rental and a fair return on the property investment used in the service. As stated above, however, the Orient is seeking only such revenue as will enable it to operate the road and is asking nothing for its security holders.

It is alleged that in many instances where divisions have been established by its connections on an arbitrary basis, these connections have declined to shrink their arbitraries when the through rates have been reduced.

In *Increased Rates*, 1920, 58 I. C. C., 220, we authorized certain percentage increases in order to permit a return of 6 per cent on the aggregate value of carrier property held for and used in the service of transportation within the boundaries of each rate-making group, under normal traffic conditions. In *Reduced Rates*, 1922, 68 I. C. C., 676, we found that 5¼ per cent on the aggregate value of such property would constitute a fair return after March 1, 1922. It is apparent, however, that the Orient has not received and is not receiving the share of the revenue within the group in which it is included to which it is

properly entitled on basis of the amount and character of service performed.

Other than filing statements containing information called for by the commission's order, the respondent carrier submitted no evidence at the hearing in this case.

The Orient and each of its connections is ordered to report to the commission on or before September 15 the divisions established according to the rules prescribed in the report and thereafter to jointly report the results of the applications of these divisions for business actually interchanged in 1922 and from January 1 to June 30, 1923.

At one of the conferences held since the hearing in this case the representative of the state of Texas stated that a large number of counties in that state had expressed their willingness to assess the Orient for taxation purposes at the nominal value of \$100 per mile. The commission expressed the opinion that other states should follow the lead of Texas in this respect and says that in fact complete exemption from all taxes until the Orient can earn something is demanded in the public interest. This course is earnestly recommended to the respective state authorities. It is also stated that through the proper channels steps have been taken to route government freight over the Orient so far as practicable.

Report on Collision Near Leeds, Mo.

THE INTERSTATE COMMERCE COMMISSION has investigated a collision between westbound passenger No. 11 and eastbound freight No. 92 on the Missouri Pacific, at Hy-tex siding, about two miles west of Leeds, Mo., on July 12, about 6:40 p. m.; three passengers and the engineman of the freight train were killed and 91 passengers, 10 employees and two mail clerks were injured. It fixes the blame on the passenger train. The trains were ordered to meet at Hy-tex, but the passenger train ran past the switch for nearly a mile. The view of the engineman is somewhat obstructed by trees on both sides of the track, the line traversing several curves; and another railroad lies adjacent to the Missouri Pacific, so that it is difficult for enginemen to tell on which track an opposing train is moving.

At Leeds the passenger train received several orders, including the one to meet the freight at Hy-tex, and also a clearance card and a block signal caution card calling attention to the meet. The trains met at 25 or 30 miles an hour. Both locomotives were knocked off the track and the first

passenger car in No. 11 was telescoped by the baggage car for about 25 feet.

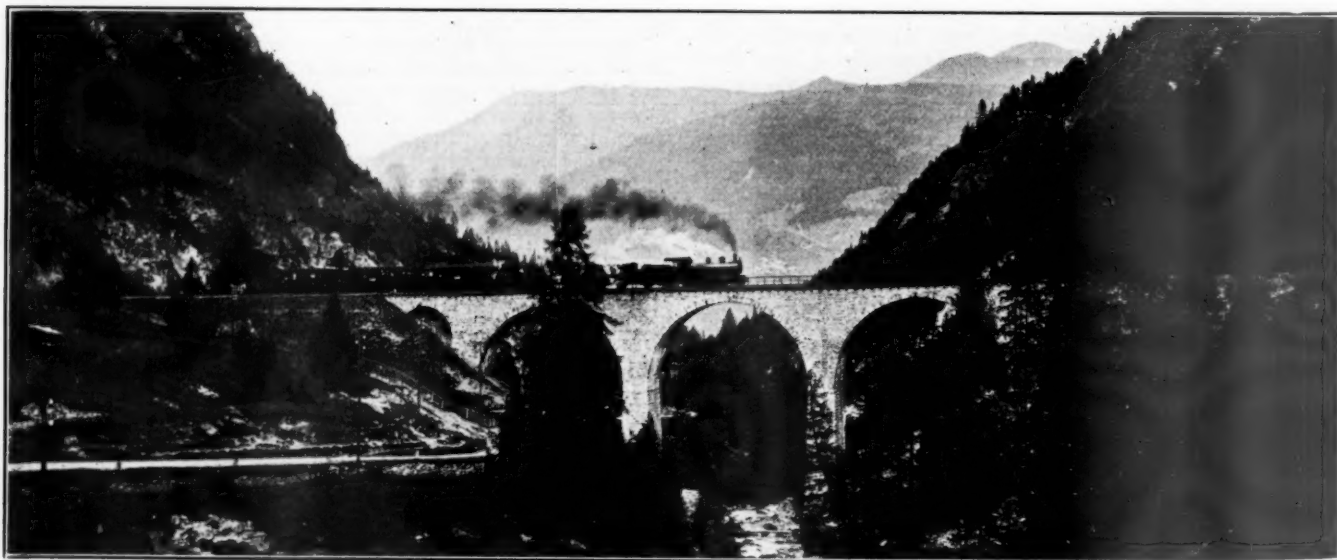
Continuing, the Commission's report says:

"Operator Roberts, on duty at Leeds, handed on three sets of orders to train No. 11, one to the fireman, one to the porter, and one to the flagman. Fireman Steck said he immediately handed his set of orders to the engineman, who read them and handed them back to him, and that he himself then read them. Approaching the point of accident he had been working on the fire, and on looking out on the inside of the curve saw the approaching train, called to the engineman and jumped. Porter Bryant had given the orders he received to Conductor Bonnette, who read them aloud to him and told him to watch out for the meeting points. The conductor was near the rear of the third car when he saw that the train was within a train-length of the west switch at Hy-tex and still traveling at high speed. He said he looked for the emergency cord, but did not see it right away, and then ran to the front of the car, opened the vestibule and looked out; he then ran into the car ahead and asked the porter and also Conductor Furness, who was riding as a passenger, if they had seen train No. 92; and when they replied in the negative he said to apply the air brakes; and at the same time jumped upon a seat and opened the emergency valve. Conductor Furness said he thought that at the time Conductor Bonnette spoke to him the train was within $\frac{1}{4}$ mile of where the accident occurred. Porter Bryant apparently had not been paying much attention to the operation of the train, and was still sitting down in the second car when the conductor came in. Flagman Jones said that when the train did not stop at Hy-tex he took out his orders and read them again to see if he had been mistaken, following which he also opened the emergency valve in the car in which he was riding.

"None of the members of the train crew heard the engineman sound the meeting-point whistle signal, Conductor Bonnette saying this might have been due to the noise of a train passing on the track of the adjoining railway when his own train was in the vicinity of the east switch.

"On account of serious injuries sustained by Engineman Moses of train No. 11, no statement from him could be obtained."

Conductor Bonnette and Engineman Moses, being in charge of the train, are held primarily responsible, but all the other members of the crew were aware of the contents of the order and "there is no excuse for their failure to operate their train properly. * * *



On the Rhaetian Railway, Switzerland

Baltimore & Ohio Systematizes Terminal Operation

Has Concentrated Classification and Inspection of Cars and Lengthened Locomotive Runs

EARLY IN 1919 the Baltimore & Ohio put in effect a plan for the making up of trains to avoid intermediate switching enroute and to enable them to be moved with the minimum of break-up between origin and destination. This plan, which was described in the *Railway Age* of August 6, 1921, page 254, was extended over the entire system early in 1921. Unlike the practice which has been followed at times in the past where classification of this character has been attempted, it has not been confined to livestock, perishable and through high-class merchandise, but has included all traffic handled by local as well as through freight trains, including empty as well as loaded cars. In other words, the system of "divisional and through classification" in effect on the Baltimore & Ohio includes livestock and perishable traffic, quick dispatch merchandise, expedite or time freight, dead freight, empty equipment (home and foreign), solid trains of coal and coke to tidewater, returning empties from the piers at tidewater to the distributing points in the coal fields, coal moving to the lakes, ore moving from the lakes to the ore-consuming districts, and limestone and dolomite from the quarries to the furnace districts.

Solid Trains Designated "Main-Trackers"

The solid trains of these various classes of traffic are designated as "main-trackers" or "trains that are made up and dispatched from a terminal for continuous movement to destination, or to a breaking-up yard, and in their movement pass through intermediate yards and terminals." Under this plan many trains operate as "main-trackers" for distances ranging from 182 to 640 miles without pulling a pin, while others stop at intermediate division yards only for the purpose of consolidation or putting on additional cars at the head or rear end.

The success which attended the operation of the "main-tracker" trains suggested the possibility of increasing the daily engine miles and thereby securing greater use of the power with a reduction in engine terminal expense through less hostling and shop attention, and ultimately discontinuing entirely, at a number of the existing roundhouses, fire cleaning and light repairs of through freight engines. Therefore, beginning about the first of the present year, the runs of through freight engines were extended to conform to the movement of "main-trackers" until now freight locomotives are operating successfully in both directions without change between.

New York terminals and	Baltimore, Md.	180 miles
Philadelphia, Pa.,	Brunswick, Md.	182 "
Baltimore, Md.,	Cumberland, Md.	189 "
Brunswick, Md.,	Connellsville, Pa.	195 "
Cumberland, Md.,	Pittsburgh, Pa.	150 "
Cumberland, Md.,	Parkersburg, W. Va.	205 "
Parkersburg, W. Va.,	Cincinnati, O.	195 "
Cincinnati, O.,	Washington, Ind.	169 "
Washington, Ind.,	East St. Louis, Ill.	165 "
Cincinnati, O.,	Toledo, O.	203 "
Connellsville, Pa.	Willard, O.	264 "
Pittsburgh, Pa.	Willard, O.	200 "
Pittsburgh, Pa.	Fairport, O.	135 "
Willard, O.	Chicago, Ill.	278 "

From the reports covering these operations it is possible to supervise closely the movement of "main-trackers" and other details involved in the strict observance of divisional and through classification regulations which have been arranged. From these reports it became evident that certain delays were occurring from time to time to these through trains because of the method of freight car inspection in vogue. A study of these questions led to the changing of the method of inspection, as a result of which a system of freight car

inspection was established at originating points as well as at points enroute to final destination, conforming to the makeup and dispatchment of "main-tracker" trains in both directions. This involved the separation of the inspection into what is termed "A" inspection, which is given at originating and breaking-up points, and "B" inspection at intermediate points. The "A" inspection is such as will disclose all defects existing on equipment that can be detected without dissecting the car, while the "B" inspection is an intermediate passing inspection for safety which is given at points at which the train stands a sufficient length of time to make the inspection when changing engines and train crews. This latter inspection is for the purpose of detecting new defects that have developed since the cars received an "A" inspection.

When "A" inspection has been applied and it is impracticable, by reason of lack of men or of material, to make the needed repairs at the point where the inspection is made, the cars are side-carded, billed and forwarded to any large car repair point. When so forwarded, in order to avoid the breaking-up of "main-trackers" enroute the cars are placed in classification order for such repair points rather than for final destination.

This system of inspection has been productive of most gratifying results. It has practically eliminated the necessity for cutting cars out of "main-trackers" because of defects; has reduced the number of bad-order loads; is expediting the repair of freight equipment; admits of greater regularity in, and more economical distribution of, the car repair forces, inasmuch as the bad-order repairs are now concentrated at originating or breaking-up points; and has made possible a material saving in the cost of inspection, a much smaller force of inspectors now being necessary.

To complete the steps necessary to secure the full benefits of the classification system, the officers of the Baltimore & Ohio are working on the revision of the plan for weighing and check-weighing carload freight received from connections and originating on the line.

Detailed Instructions Issued in Book Form

To make the plan for the concentration of the classification of cars effective, detailed instructions were prepared in the form of a booklet which has been distributed to all employees concerned engaged in this work. These instructions outlined the classifications which are to be made at each terminal and the trains into which each car should be placed. Similarly detailed instructions for the "A" and "B" inspection of cars at each terminal have been prepared to govern the character of inspection which is to be given the cars passing through each terminal. In recent years working books of the New York, Baltimore, Cincinnati, Pittsburgh, East St. Louis and other terminals, including all train yards, have been prepared, in which the work as assigned to each crew in these terminals and yards is shown in complete detail.

It is not possible to gage accurately in dollars and cents, what the saving to the Baltimore & Ohio has amounted to through the adoption of the divisional and through classification and the inauguration of the improved yard and terminal operating methods, but it is believed to run into the millions annually. By reason of the greater use of power, the continuous movement of freight equipment and the diminished need for enlarged or additional yards, the capital outlay, it is felt, is less than it otherwise would be. There

have been reductions in per diem expense, in the amount of damage to equipment, and in the amount paid for loss and damage to freight. Congestion in yards and terminals is avoided, thereby contributing to the successful operation and maintenance of freight schedules.

This plan for the systematic classification of cars and for freight car inspection has been developed under the direction of the chief of yard and terminal operations of the Baltimore & Ohio, to whom we are indebted for the above information.

Coal Distribution Work Meets Varied Problems

Improvement in Car Supply on Coal Carrying Lines Increases Output. Results of Cleveland Settlement Awaited

COMPLICATIONS in the distribution of available coal supplies occasioned by the activities of railroads engaging in brisk competition for fuel, thereby creating a tendency toward the inflation of prices, have caused the Federal Fuel Distribution Committee to take steps looking toward the removal of this condition. Railway interests have been requested to discontinue the practice of competitive bidding for coal and to keep the central fuel committee informed as to difficulties experienced in the obtaining of urgent coal requirements at fair prices. In such cases, the committee has assured the railroads that the application of priority No. 1 orders will be used to insure the companies their equitable proportions of available fuel supplies. The message sent by Fuel Distributor H. B. Spencer on August 15 is as follows:

"General information is coming to this office that the railroads are disturbing the coal situation very seriously by bidding in the fields prices in excess of the Hoover fair price agreement. In order that this coal may be handled in an orderly manner and in such a way as to protect the railroads and others likewise vitally interested it is necessary that instructions be issued by you that no prices be offered in excess of the Hoover fair prices. Report to your purchasing committee in Washington any failure to get coal at these prices and we will arrange to put the railroads who are in a situation as to stocks requiring emergency action in priority number one."

Some Railway Fuel Put in Class 1

As the disposition of the railroads to bid for coal to the demoralization of the Hoover fair price schedule is entirely traceable to their apprehension in the matter of obtaining adequate fuel supplies, it is believed that the reasonable assurance of the maintenance of adequate stocks given in the central fuel committee's policy of placing urgent railway fuel orders in class 1 designation will allay their uneasiness and work toward the remedying of the price situation.

Authorizations for railroad fuel to come from Alabama for certain southwestern systems running out of St. Louis, and other railway lines centering in Chicago have been advanced from Class 2 priority to Class 1. The committee's policy of handling the country's more urgent fuel requirements through Class 1 priority was influenced to some extent by the necessity of allaying the apprehension of coal operators who hesitated to divert coal under contract to regular customers for the filling of priority No. 2 orders. Under a recent opinion from the Department of Justice, the placing of coal orders under No. 1 priority by the Federal Fuel Committee takes legal precedence over general contracts for coal entered into before the arising of the present emergency.

The question as to whether grain elevators should be classed as public utilities in the present coal emergency has been submitted to the central fuel committee. The operation of large elevators in Kansas City, Omaha, Wichita and other mid-western cities is a matter of some urgency at this time when shipments of western grain are near the peak. The

needs of these elevators are considered by the committee as coming within the jurisdiction of the various state fuel administrations.

A governmental fuel committee, comprising members from each federal department, has been organized for the purpose of facilitating the orderly movement of government coal supplies, generally given No. 2 classification. This committee will act with the Federal Planning Committee in the allocation of coal purchases to avoid duplication and confusion. In line with this policy, the Navy Department has transferred a certain tonnage to the immigration station at Ellis Island, where supplies had been seriously depleted.

Encourages Importation of British Coal

In the matter of provision of fuel for river steamers, a differentiation is made between vessels engaged in the transportation of food supplies and mail, and those devoted to purely excursion purposes. The needs of the first-named class of vessels will naturally be given first consideration.

The Fuel Distribution Committee is inclined to encourage the utilization of stocks of British coal being received in the port of New York. Because of the fact that domestic coal being purchased by many large consumers in that territory is obtained at somewhat lower rates than that asked for English and Welsh coal, the importation of foreign coal has lagged. The Fuel Distributor feels that there is a real need for all British cargo coal, and that it should help to meet the requirements of many consumers in New York and New England.

Revised figures from the Geological Survey place the total coal production of the country for last week at 4,550,000 tons. Estimates which leave out of consideration possible new production from union mines as a result of developments at the Cleveland, Ohio, conference are for a total production of 4,200,000 tons this week, of which 3,800,000 tons should come from territory east of the Mississippi. It is estimated that 15,000,000 tons of bituminous lump coal will be needed to replace the anthracite deficiency. State Fuel administrations in Rhode Island and Massachusetts are advising many anthracite consumers that they will be compelled this season to use bituminous lump as a substitute.

A gradual improvement in the car-supply situation is noted on coal-carrying lines. Adjustment of labor difficulties on the Louisville & Nashville, where conditions have been affected by the walk-out of railway employees at Corbin, Ky., the pivotal point in the movement of coal from the Hazard field in southeastern Kentucky, is expected to facilitate coal movements on that system. Normal transportation conditions are said to have been attained on the Norfolk & Western railway, while improved conditions are reported on the Chesapeake & Ohio and the Virginian systems.

Consideration is being given to a proposition for the westward movement of Pennsylvania and Northern West Virginia coal, supplies for use in Pennsylvania to be replenished by tide-water coal from the Hampton Roads district. It is pos-

WASHINGTON, D. C.

sible that some movement of coal may be undertaken by water to Montreal, Canada, or Portland, Maine, for transshipment to Canadian provinces where the fuel situation is critical. It is the general policy of the Fuel Distribution Committee to give careful consideration to Canadian requirements. In this connection, it is recognized that some coal from British Columbia is being imported into the United States.

Authorization for approximately 150,000 tons of coal for lake movement from Kentucky and the Virginias has just been granted by the central committee. The committee's program calls for a lakeward movement of 6,250 cars this week and 8,000 cars next week. This movement will for the present be accomplished by the dispatch to the lakes of all loadings in certain districts on Mondays, Wednesdays and Saturdays of each week. The demands of numerous public utilities in Indiana, Ohio, Michigan and other mid-western states must be considered in connection with this movement of lake coal.

Lake Movement Special Problem

Such new coal production in Ohio and Pennsylvania as may result from developments at the Cleveland conference is expected to help alleviate the lake coal situation. The transportation conditions of certain railroads on which these newly-producing mines are located, are, however, a factor in this situation.

The problem of expediting coal shipments to the upper Great Lake region in order to attain the necessary total coal movement to that territory before the close of lake navigation was given the serious attention of the Federal Fuel Distribution Committee, this week. It was expected that shipments aggregating 250,000 tons of coal will be made toward the lakes in the present week as compared with an estimated shipment of 140,000 tons for last week. A figure of 400,000 tons has been set for lake movement during the week beginning August 21.

The ability to supply urgent lake requirements is said to depend largely upon the coal production situation in Pennsylvania. Mines in Pennsylvania that ordinarily make shipments of lake coal are at present closed, and the question of whether Pennsylvania coal will be available in considerable quantity for early lake shipment hinges largely on the question whether the coal tonnage produced in Pennsylvania will be sufficient to take care of that state's own urgent needs and to allow of a supply for diversion to the lake country. A partial solution to the problem may be found by replacing Pennsylvania lake shipments by importations into that state of tide-water coal from the Southern Appalachian district.

Increased Loadings in Non-Union Areas

A delegation comprising members of the Northwestern Coal Dock Operators' Association and members of the Minnesota State Fuel Committee, who presented the fuel requirements of five northwestern states, were assured by Fuel Distributor Spencer that movements of coal in that direction would be made as rapidly as production would admit.

A total of 13,258 cars of coal were loaded throughout the country on Friday, August 11. This represents an increase of 753 car loadings over the same day of the previous week. Loadings of 69,000 cars were reported for the first five days of last week, an increase of 5,660 cars over the corresponding number of days of the previous week. Loadings of coal on the Chesapeake & Ohio, Friday, amounted to 1,319 cars; on the Norfolk & Western, 2,115 cars; and on the Louisville & Nashville, 1,609 cars. Coal loadings on these three lines represent an increase of more than 400 cars over the figures for Friday of the previous week.

Inquiries from Kansas and other trans-Mississippi states relative to the obtaining of coal supplies from producers in the Rocky Mountain region are being referred by the central

fuel committee to the coal distribution agencies in the states now producing coal in that territory.

Representatives of a large industrial concern owning its own coal mines conferred on Monday with the Fuel Distribution Committee relative to placing the entire coal production of this mine subject to the orders of the fuel committee for use by essential industries.

Senator Swanson and Representatives Harrison and Bland of Virginia, accompanied by Maj. Alexander Forward, state fuel administrator, and a delegation of prominent citizens of the state, called upon Fuel Distributor Spencer on Monday to ask that a specific allotment of coal be turned over to the Virginia committee for distribution among essential industries in accordance with the plans of the federal organization. The suggestion was made by the central committee that an organization for the distribution of fuel supplies be formed in Virginia similar to that organized in other states to co-operate with the State Fuel Administrator.

Authorizations issued Friday by the central committee provide for the movement of 100,000 tons of coal to Toledo and Sandusky, Ohio, for shipment to Lake territory. Other authorizations issued provide for the more pressing fuel needs of public utilities in Baltimore and Detroit and for electric traction purposes in New York City. A considerable tonnage was placed at the disposal of the Delaware Coal Commission for distribution within that state in accordance with the plans of the fuel distributor.

Class 1 Priority to Be Guarded

The problem of the distribution of car supply between mines engaged in the shipment of coal classified under No. 1 priority and those shipping coal to public utilities and other consignees under previously-made contracts continues to demand the attention of the Fuel Committee. While it is desired to preserve the integrity of contracts as far as possible, the feeling is that general contracts must in a measure take secondary position to the meeting of particularly urgent coal necessities created under an exigency which has arisen since such contracts were entered into. Present plans of the Fuel Distribution Committee are that orders for Class No. 1 coal shall be so distributed as not to disturb seriously the proper distribution of cars. All orders for coal considered to be within that classification will go to the district committees who will apportion the orders among the mines in their districts. In such apportioning of orders it is expected that contracts will be observed as far as possible. In this connection it is pointed out that many operators, having in mind the maintenance of their normal business relations, would prefer to devote their energies to filling their regular contracts.

The Fuel Committee is seeking a practical method of insuring that coal ordered through a retail dealer for the use of public utilities or hospitals will not be diverted to other channels. Where it is manifest that an order for coal comes within a particular classification, it will not require any certification to the railroad to secure priority under order No. 23, of the Interstate Commerce Commission. Where, however, the consignee of a shipment does not show the character of the coal and its uses it will be necessary for the shipper to obtain a certificate from the State Fuel Administrator that the coal is to be used in Class 2 priority, and a certificate should accompany the consignee's order to the mine. This will obviate taking matters of this kind to the Washington Central Committee, as it will give the mine operator the information needed to enable him to obtain from the railroad, cars to which he is entitled in making shipments of priority coal.

An estimate of 765,000 tons of bituminous coal weekly as being required to meet the immediate needs of gas and electric public utilities and domestic consumers in the territory east of the Mississippi River is made by the United States

Geological Survey. Of this amount, New England would require 9.2 per cent; the non-coal-producing states of the coast region, exclusive of New England, 21.6 per cent; coal-producing states of the coast region, 22.9 per cent; and Ohio, Indiana, Illinois and Michigan, 46.3 per cent. Railroads in the same territory will require 2,000,000 tons weekly, making a total emergency requirement of 2,765,000 tons. Coal is now being produced in this territory at the rate of 3,800,000 tons weekly.

Railway Fuel

The railway fuel situation last week was especially acute in Michigan, on certain lines in Illinois and on some of the southwestern lines running out of St. Louis. Certain lines traversing Pennsylvania and New Jersey report seriously depleted supplies.

An extended utilization of the port of Charleston, S. C., as an outlet for Tennessee coals destined for New England is under consideration by the Fuel Distribution Committee.

An outline of the more urgent requirements of the various eastern and middle western railroads was sent last week to the district fuel committees, functioning in Kentucky, Tennessee and the Virginias. These requirements for railway fuel are already covered by contract. This movement of railway fuel is to be co-ordinated with the movement of tonnage urgently required for the upper lake country.

Authorization for considerable tonnages of coal to go from the Bluefield and Thurmond districts of West Virginia to New Jersey, for railway fuel purposes, have been issued.

Protests are being made from certain quarters against the use of railway fuel supplies for the operation of excursion trains. The point is made that this is an unnecessary use of railway fuel, which, under the Fuel Distribution Committee's plans, is given first consideration.

It was announced last week that the railway mechanical situation on coal-carrying lines in the Virginias, which had been hampering the shipment of coal, continued to improve with the importation of mechanics from eastern and western lines. The requirements of the Chesapeake & Ohio and the Norfolk & Western were said to have been practically met, and mechanics were diverted to the Virginian. Later it was stated that the Virginian had about filled its requirements for employees. Shipments of coal from southeastern Kentucky were retarded to some extent by conditions at Corbin, Ky., where more than 300 railway mechanical employees are said to have left their employment because of threats of violence. An unusual situation prevailed in the western Kentucky field, where coal production was accelerated by the existence of a 100 per cent car supply.

An opinion from the Department of Justice is that priority orders for coal issued under Classification No. 1 of the In-

terstate Commerce Commission have preference over other orders which operators may have on their books.

I. C. C. Warns Against Confiscating Coal

The Interstate Commerce Commission on August 14 issued the following notice to carriers: "The commission's attention has been called to the fact that railroads frequently confiscate coal which is being moved under priority of equal or higher class than coal for railroad fuel as ordered by the commission. This practice is not consistent with the spirit of the service orders of the commission and tends to defeat the efforts now being made to insure the most efficient distribution of coal. All railroads should refrain from confiscating coal consigned under Class 1 and Class 2, paragraph 7, our Service Order 23, and Amendment No. 1 thereto."

The commission also on August 15 issued a notice to the carriers directing attention to the following action of Division 5 of the commission, taken on that day:

Voted, That the Commission considers that the application of the so-called "railroad assigned car rule" as carried in paragraph 8 of Supplement 1 to Car Service Circular No. 31 of the American Railway Association, is inconsistent with the plan of priorities prescribed in Service Order No. 23 as amended of the commission as necessary to meet a national emergency, and that rule should not be invoked by railroad carriers subject to the provisions of that service order as against the priorities therein required, during the continuance of the order and emergency declared by the commission. Carriers must meet their needs for fuel in some way which is consistent with the Service Order and not in conflict therewith.

The whole subject of the propriety of the rule mentioned is before the commission in a formal proceeding, and this announcement is not to be taken as prejudging or prejudicing the decision to be made in that case, in which the record has not yet been completed.

The commission also issued Amendment No. 2 to Service Order No. 23, appointing as additional agents of the commission "for the more prompt and effectual administration during the present emergency of the authorizations, directions and requirements of paragraph 7 of Service Order No. 23" the following: John T. Marchand, J. A. Emmart, W. L. Lloyd, A. R. Layman, Delbert Garman, F. F. Engles, L. P. Green, T. L. Stevens, C. J. Bailey, C. D. Thomas, W. S. Rice and W. D. Anderson.

The commission has postponed the hearing on revised coal car distribution rules proposed by the American Railway Association, which had previously been adjourned to August 14 because so many of the witnesses required were unable to be present on account of the coal and railroad strikes.

It has been decided that legislation to strengthen the authority of the coal committee over the distribution of coal and in its efforts to prevent price increases will be necessary even with the increase in production to result from the settlement of the coal strike, but it was stated that developments of the next few days will decide what will be necessary.



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Rail Union Heads in Session at Washington



The Facilities at Carbondale with the New Treating Plant and Pump House on the Right.

How the Illinois Central Overcame a Water Shortage

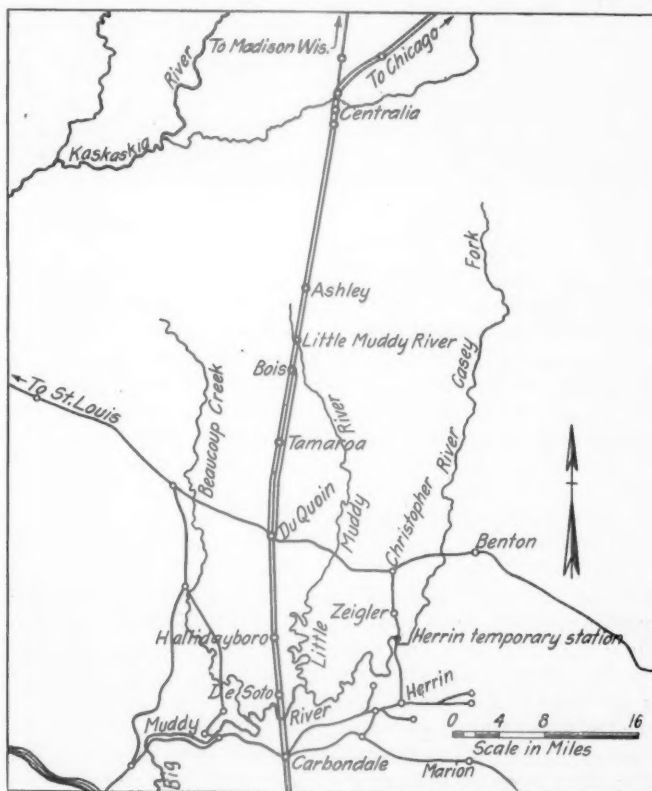
Interesting Development in Southern Illinois Affords Solution of
a Serious Problem at Small Expense

DURING THE LAST few years a water supply development has been carried out by the Illinois Central in the vicinity of the coal fields of southern Illinois, which has not only solved a serious operating problem at a relatively small expenditure but also has afforded an attractive source of revenue from the sale of water as well as a protection to the company from loss of business in the vicinity affected. Necessitated by reason of a series of annual water shortages sufficiently acute to require the hauling of water in trains for considerable distance at much expense, and not only seriously interfering with the orderly and economical movement of traffic but actually threatening production of the mines in the vicinity, a program was launched in 1918 involving extensive alterations at several water stations and the installation of a new pumping station. The work was carried out over a period of years and involved a total expenditure of approximately \$240,000, as a result of which the region is adequately protected against trouble from this source for several years to come and a revenue has been afforded from the sale of water to interests not having supplies of their own which has already paid a substantial portion of the entire investment.

The lines under consideration extend from Centralia, Ill., on the north to Cairo on the south, where they not only constitute the middle link of the main line but form a neck in the bottle between the main line and the important branch diverging to Freeport on the north line of the Illinois Central and the main line and the Birmingham line of the Illinois Central to the south, as well as including the terminus of the line to St. Louis. Further than this the Illinois Central system at this point passes through one of the largest coal producing fields west of the Alleghenies, where it has numerous branches and maintains an extensive switching service.

This is a region in which the subsurface water contains such a high content of scale-forming salts as to warrant its use only as a last resort. It is also an area in which the few streams carry much suspended matter and are otherwise more or less undesirable for use because of pollution from mine drainage. As a result it had become a practice for the railroads in this vicinity to obtain their supply from surface reservoirs of their own construction or the property of neighboring towns. The topography of the country lends itself to this purpose and these reservoirs have invariably afforded supplies of very satisfactory quality for locomotive use. Un-

fortunately, however, the region is subject to protracted periods of dry weather. This condition, in the face of the heavier demand for water not only because of the greatly increased railway traffic and mining activity and in the case of municipal supplies, due also to the increases in population,



The Main and Branch Lines of the Illinois Central in the Coal Area

precipitated a situation in which the railroads in that vicinity were confronted annually with a threatening or actual shortage of an increasingly serious nature.

Of the several points on the Illinois Central where trouble

was encountered, the situation was most acute at DuQuoin, 35 miles south of Centralia. This is a junction point between the main line and the line to St. Louis, upon which business had increased approximately at the rate of 10 per cent a year for five or six years. The supply at this point was obtained from a reservoir whose capacity had been outgrown by the demand. It was a regular occurrence for it to become exhausted about September 1, and it would remain so until about the first of the year, either because there was no water available or because of the freezing during the winter of what little water remained in the reservoir.

The Principal Shortage Occured at DuQuoin

As it was essential that a supply be maintained at this point it became necessary to haul water in cars from Carbondale, 20 miles south, or from a branch line station at Sand Ridge, a distance by track of about 50 miles. As an indication of the acuteness of the shortage it was not unusual for as many as three trains of 20 cars each to be operated daily to serve the one station, and during the months of November and December, 1917, and January, 1918 (the most difficult time of the year to haul water) as many as

sented a condition somewhat like that at Bois. Deriving its supply from an impounding reservoir of approximately 40,000,000 gal. capacity, from which water was delivered by a steam pump through a mile of six-in. pipe to the storage tanks, this station afforded an adequate supply of water of good quality under normal conditions, and as a matter of fact had never become exhausted. But Hallidayboro was not an economical stopping place for trains and it presented a cause for concern when by reason of shortages elsewhere, it became necessary to take more water than usual at this point.

The Quality of Water Was Also a Feature

The situation at Carbondale, the next station south on the main line, presented another aspect to the problem than that of shortage. Situated 30 miles south of Hallidayboro and at the junction of the main line with the coal branches, where it was customary for all trains to take water and where as many as 1,500 cars of coal a day were received from the coal producing section, this station was one of the most important on the system. To meet the demands made upon it, water was pumped from a steam plant on the Big Muddy



A Portion of the Reservoir at Bois

3,000 cars of water were hauled to this point and emptied into the reservoir. This was an expensive procedure, the cost of hauling water to the one station, in fact, exceeding \$25,000 in 1917, exclusive of rentals and maintenance of equipment. Moreover, these trains seriously interfered with the normal operation of regular traffic and because of the impossibility of hauling the water in ordinary tank cars at that season of the year, because of weather conditions, the situation required the use of coal cars at a time when these cars were in the greatest demand at the mine.

An annoying situation also presented itself at Bois, midway between DuQuoin and Centralia, where the supply was obtained from the Little Muddy river and from an impounding reservoir of approximately 50,000,000 gal. capacity. While the reservoir water was entirely satisfactory in quality and the Little Muddy river a water of fair quality, and while no shortage had actually occurred at this point up to the time the water supply program was undertaken, a threatening situation existed in the fact that the creek could not be relied upon for the required supply during more than three to six months of the year, during a part of which time it also carried considerable matter in suspension. Neither could the water shed be relied upon to keep the reservoir filled to its capacity. In addition the old pumping plant had become inadequate to handle properly all the water required during normal times, not to mention the period when a shortage was encountered at other points, particularly at DuQuoin.

Hallidayboro, located 12 miles south of DuQuoin, pre-

river, $4\frac{1}{2}$ miles west of Carbondale, through three miles of 8-in. cast iron pipe and one mile of 12-in. pipe to service tanks at the roundhouse and in the yards having a total capacity of 100,000 gal. Aside from a little trouble occasionally encountered by the pipe line being too small, this supply was adequate at all times for the demand made upon it, but the quality of the water was bad. As suggested by its name, the Big Muddy river carries large quantities of silt at certain seasons of the year but in addition to this it also carries matter in solution ranging from 1 to 7 lb. per 1,000 gal. of which from 1 to 5 lb. is scale-forming solids. Because of this, considerable trouble from leaking of flues was encountered during low water periods, by reason of which it became advisable at such times for trains to take water at less advantageous points from an operating standpoint.

Shortage in the Mine District Threatened Production

The Illinois Central maintained no water stations in the vicinity of the mines tributary to its tracks, but depended for its supply upon the towns of Christopher, Benton, Herrin and Marion, shown on the accompanying map. All of these towns were supplied from impounding reservoirs. With the normal increase which had taken place in the population of these towns, as well as the increased demand for water made upon them by the mines and the railroads, it had become a regular thing for the towns to suffer from water shortages during the late summer and early fall, and when these shortages occurred it became necessary for engines to run for water

to DuQuoin or Carbondale, the average distance ranging between 3 to 12 miles each way. With the interruption to the regular operation of trains by reason of this continual running for water during uncertain seasons, together with the facts that the supply at Carbondale was anything but satisfactory, that the supply at DuQuoin was obtained only by hauling water from other points; and that there was a tendency for the shortages of water purchased from the towns to increase with the growth of the demands made upon them, the situation was becoming a serious one.

Confronted with this state of affairs in the vicinity of the mines, and on the main line, it was evident that something more substantial in character and less expensive in kind was required to remedy the trouble than the hauling of water from points where it could be obtained, and investigations were accordingly made to this end.

DuQuoin Required a New Reservoir

At DuQuoin, where about 75 per cent of the shortage occurred, it was not possible to overcome the difficulty inexpensively. With no creek at this point and with the poor quality of the ground water eliminating it from consideration

a second dam across the main valley below the main reservoir and the purchasing of a large tract of land for a reservoir site, at a cost ranging anywhere from \$100,000 and \$150,000 over and above the cost of increased pumping facilities. In working up the plans for the new pumping station, however, the idea was conceived of so arranging the plant that the old reservoir could be filled from the stream during its high water period and then held in reserve for the period when a supply could no longer be obtained from this source.

Working on this basis, the old steam plant was replaced by a new plant, which at DuQuoin, consisted of two 25-hp. semi-Deisel engines, belt connected to two 500 gal. per minute centrifugal pumps arranged in duplicate and capable of pumping against 100 ft. head. In addition to this the six-inch line to the reservoir was replaced by a 10-in. line, an additional storage tank was provided and a water column shifted to a more advantageous location. This work, although it involved a total expenditure of only \$30,000 approximately, has proved entirely adequate for the purpose, the creek affording a certain supply until about September after which the reservoir can be relied upon for a period of from four to five months. As indicating the economy of this



The Northern End of the Bois Reservoir

as an auxiliary supply, only two alternatives remained; one, that of deepening the existing reservoir and the other of building a new one. An investigation revealed the fact that even if the deepening of the existing reservoir was not prohibitive in cost there was no assurance that when once deepened the water shed could be relied upon to provide the additional water. It was decided, therefore, to build an additional reservoir and to replace the old pumping plant. The new reservoir was constructed in a valley adjacent to that in which the old reservoir was located. This required the construction of a dam at an expense, along with other details, of about \$128,000. Supplementing this, a new pumping plant was built which consists of two 25-hp. semi-Diesel engines, belt connected to two 500 gal. per minute centrifugal pumps. In addition the six-inch pipe line was replaced by one and a half miles of eight inch pipe line, salvaged from improvement work at Carbondale, and a 100,000 gal. service tank was erected to increase the track storage to 190,000 gal.

An Interesting Solution Was Worked Out at Bois

At Bois, as has been mentioned, the water supply was obtained from a stream that could be relied upon for an adequate supply only about six months in the year and from an auxiliary reservoir, having an insufficient draining area. The problem, therefore, was one of increasing the water supply. The solution at first appeared to be one of enlarging the impounding facilities and at the same time increasing the watershed, a work which would require the constructing of

plan over the original one of providing a new impounding facility, approximately 30,000,000 gal. of water was pumped into the reservoir from the creek at a cost not exceeding \$150, while if the additional storage and water shed had been provided the interest and depreciation expense alone at six per cent would have been anywhere from \$6,000 to \$9,000 annually.

Having remedied the situation at DuQuoin and Bois it was found unnecessary to make immediate changes at other points on the main line, other than at Carbondale where the facilities for handling the water were increased by replacing three miles of 8-in. pipe with a 12-in. line and installing a water treating plant to remove the incrusting solids and suspended matter from that water. The total cost of the latter project approached \$68,000.

The Temporary Plant Paid for

Its Cost Many Times Over

This having been done, the development was completed by building a temporary station at a point about midway between Herrin and Ziegler on the Little Muddy river. At this point the river is above the principal mine drain inlets and affords a water seldom exceeding $1\frac{1}{2}$ to 2 lb. of encrusting solids per 1,000 gal. as compared with 5 lb. at Carbondale. The equipment at this point consists of a steam plant of two 45-hp. boilers and a 50,000 gal. tank, constructed from material salvaged from other points at a cost not exceeding \$16,000. While this plant is not located as con-

veniently as could be desired to the switch engines operating in this district it has proved a boon not only to the railroads in the vicinity but to the mines as well, by affording a suitable supply of water at times when it could not be obtained from the adjacent towns. In the fall of 1919, for example, in addition to providing all the water required by the Illinois Central, several thousand cars of water were hauled from this station to the mines, the number of which in November, 1920, alone aggregated 838 cars or about 1,000,000 gal. of water.

At a total cost therefore of about \$240,000, a program was carried through which has eliminated entirely a recurring condition characterized by much running for water as well as the hauling of water in train loads with the interruption it entailed to the normal dispatch of trains as well as its expense (the total out of pocket cost of hauling water in



A New Pump House Was Built at Bois

1917 approximating \$40,000 excluding the cost of rentals, maintenance equipment, etc. The work has resulted also in a great improvement in the water at Carbondale, and has worked an appreciable benefit to the company directly and indirectly by eliminating any necessity for curtailment in coal production by reason of water shortage and by affording a considerable source of revenue from the actual sale of water to mines for coal washing and steam generating purposes. To indicate the size of this business, during one month 111 tank cars of water were furnished to the mines from the new station at DuQuoin, 85 from Colterville, 118 from New Athens and 7 from Carbondale, all in addition to the 838 cars from the Herrin-Ziegler pumping plant.

These improvements were designed and undertaken under the direction of F. L. Thompson, chief engineer, A. F. Blaess, engineer maintenance of way and C. R. Knowles, superintendent of water service of the Illinois Central, and were carried forward in easy stages up to their completion in 1920.

Block Signal Statistics for 1921

THE INTERSTATE COMMERCE COMMISSION has issued its annual tables, for January 1, 1922, showing the mileage of railroads in the United States operated by the block system, with collateral information concerning kinds of apparatus and methods of operation. The tables are in the usual form, with which the interested reader is familiar.

The total length of road block signaled on January 1 was 102,468 miles, which is 52¾ per cent of the mileage

of the roads reporting, excluding lines which are used only for freight. Of the total railroad mileage of the country it is about 40 per cent.

The total now reported is made up of 63,406 miles using the manual block system and 39,062 equipped with automatic block signals. The latter figure is about 20 per cent of the length of the roads reporting and 16 per cent of the total mileage of the country.

The total automatic mileage (39,062) is 518 miles greater than was shown for January, 1921, and the non-automatic (63,406) is 66 miles greater.

A few of the larger increases and decreases in the totals reported by individual roads are shown in the bulletin, in a separate statement (see below): but comparisons with statements which were furnished by the railroads for use in the annual review of the *Railway Age* (printed January 7, page 137) indicate that there are numerous discrepancies; and there are some manifest errors. The increase in automatic mileage on the Illinois Central, given as 69.7 miles, appears to be 48½ miles too large; while the *Railway Age* table shows it to be 50 miles too large.

The mileage of road on which automatic signals are worked "normal danger" shows a large increase over 1921, but here again numerous errors apparently vitiate the totals, both of normal danger and normal clear. The Baltimore & Ohio reports an increase in normal danger of 458 miles and a decrease in normal clear of 431 miles. Errors, omissions, and corrections of former errors in the statements of several roads leave the grand total much in need of amendment.

The Delaware & Hudson reports electro-gas signals in use on 174 miles of road, 82 miles less than the year before, with a corresponding increase in electric motor signals. The Pennsylvania's mileage of position-light signals, 114 miles, is five miles greater than in 1921.

The Fort Worth & Denver City reports to the Commission that its mileage of road operated under the manual block system is 114 miles (single track) or 106 miles less than one year before, but its report to the *Railway Age* indicated 141 miles added in 1921. In the government report for the earlier year there was a foot note to the effect that on this road the space interval was in use only as between passenger trains following one another.

The Great Northern reports the electric train staff in use on 15 miles of road, as compared with 79 miles a year before, while the St. Louis-San Francisco has increased its staff mileage from 10 to 17. The Great Northern seems to have substituted automatic signals for the train staff.

INCREASES AND DECREASES IN 1921 (MILES OF ROAD)

Name of road	Increase		Decrease non-automatic
	Automatic	Non-automatic	
Atchison, Topeka & Santa Fe.....	.....	37.4	.....
Cedar Rapids & Iowa City.....	.....	27.0	.....
Chicago & North Western.....	.....	56.7	.....
Chicago, Burlington & Quincy.....	33.2	.....	24.9
Chicago, Milwaukee & St. Paul.....	.....	.....	200.5
Cleveland, Cincinnati, Chicago & St. Louis..	69.6	.....	66.5
Du'uth, South Shore & Atlantic.....	.....	28.6	.....
Fort Worth & Denver City.....	.....	.....	106.5
Great Northern.....	53.7	.....	63.6
Gulf, Florida & Alabama.....	.....	143.0	.....
Illinois Central.....	69.7	.....	.....
Missouri, Kansas & Texas.....	79.1	.....	.....
Northern Pacific.....	.....	33.1	.....
Pennsylvania.....	9.9	58.6	.....
Tremont & Gulf.....	.....	67.0	.....
Union Pacific.....	65.3	.....	.....

Telephones. Table No. 6 shows that telephones are now used for transmission of train orders on 123,253 miles of railroad, 1,231 miles more than on January 1, 1921; while the mileage on which the telegraph is used (132,682) has decreased 635 miles. The total mileage of the roads represented in table No. 6 is 246,414. Some roads report both telegraph and telephone in use on the same divisions or sections.

Boston Switching Rates—Studies in Cost of Service

Elaborate Analysis of Operating Costs in a Large Group of Busy Freight Yards at Boston, Mass.

By John C. Owers

AN INTERESTING feature of the railroads' defense in the case of the Boston Wool Trade Association, decided by the Interstate Commerce Commissioner on June 6* consisted of cost of service studies which were made between the date of filing the complaint and the hearing.

These studies, which were first started on the New Haven, were made upon a general plan worked out by J. E. Slater, special assistant to the general manager of that company, and were adopted by the other roads. They were made to determine the actual car movement performance per engine

made reports showing the number of cars handled in each movement, the tracks and yards from and to which the cars were switched, and the time consumed; and, so far as possible, the same cars were not counted more than once unless the second handling was entirely dissociated from the first.

The information secured from these reports established the number of car movements made in each yard per hour, which, for cost purposes, were expressed in decimal fractions of an engine hour per car movement.

The second factor was arrived at by observation of individual cars moving within the terminal and by studies of normal car movements made in accordance with the accepted principles of yard operation.

Determination of the cost of operation was, to the greatest possible extent, based on actual expenditures during the period of the study; but it was found necessary to allocate a considerable number of accounts, principally those of overhead.

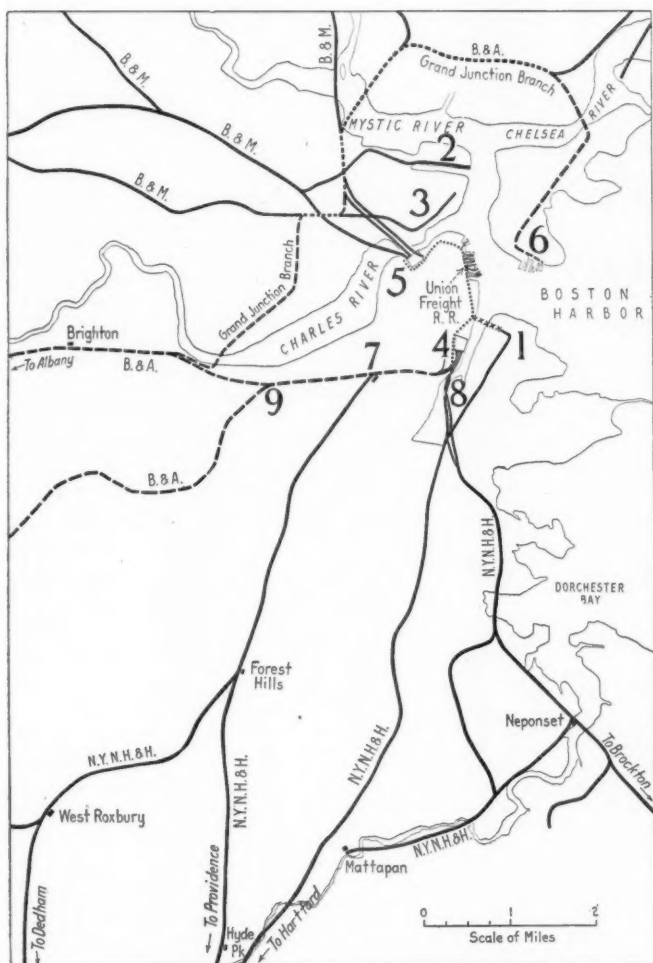
The charge against maintenance of way was made by dividing the actual expenses of six representative months by the engine hours for the same period and multiplying the result by the engine hours for the period of the study. Maintenance of equipment charges were actual, except for back shop repairs, which were based on the average back shop expense per switch engine mile; but the items of superintendence, injuries to persons, loss and damage, stationery and printing, general expenses and similar accounts were generally allocated in the ratio that the direct charges bore to the total of the account for the operating division or for the entire road, as circumstances required.

The fixed charges were based on six per cent return on the value of the terminal property as obtained from the valuation engineers, actual tax payments and a six per cent charge on the value of the engines actually used in switching service. In setting up the land and construction valuation, all main line tracks, freight houses, docks, passenger terminals and other property not concerned in actual freight yard switching were excluded, the object being to restrict this factor to the actual investment on freight yard property.

The total expenses divided by the engine hours showed a cost per engine hour of between nineteen and twenty-one dollars for each road, and this sum multiplied by the engine hours per car movement in each yard unit gave the individual yard cost, which varied somewhat in accordance with the class of work done.

Having reached this point, the actual cost of typical switching movements was determined by ascertaining the number of handlings per car and amount of engine time per yard, and multiplying the total time by the rate per hour. In addition to the actual switching costs, a per diem charge of \$1.80 was made; but in movements involving two roads only 90 cents each was allowed, this amount having been decided upon as conservative after careful consideration of the subject.

In reaching final conclusions as to the details of the studies and the various formulæ used for allocation of charges, there were several conferences between representatives of the railroads and Professor W. J. Cunningham of Harvard University, who, at the request of President Hustis, of the Boston & Maine, had an oversight of the work with a view of securing unity of method and harmony of results.



Railroad Freight Lines in Boston and Environs

hour in each of the yards of the Terminal district, the number of movements made per car while in transit from point to point in one terminal, or in interchange; and the expenses of operation per engine hour, including a six per cent return on the property investment.

The first element of cost was ascertained by assigning men to each switching crew to record the engine movements and the number of cars moved on each occasion. These men

*Reported in the *Railway Age* July 15, page 130.

**EXHIBIT A.—ANALYSIS OF YARD SWITCHING EXPENSES PER ENGINE HOUR—
BOSTON FREIGHT TERMINAL YARDS, NEW YORK, NEW HAVEN & HART-
FORD RAILROAD. (BASED ON EIGHT WEEKS ENDING JANUARY 29, 1920)**

Account		Operating expenses			Bases of allocation
		Direct	Allocated	Total	
Maintenance of Way and Structures:					
201	Superintendence		\$1,042.83	\$1,042.83	C
202, 212	} Roadway and track... \$11,670.30	\$11,670.30	.....	11,670.30	B
214, 216					
218, 220					
229	Roadway buildings.....		48.29	48.29	C
231	Water stations		214.71	214.71	D
233	Fuel stations		295.87	295.87	D
235	Shops and engine houses.....		1,431.46	1,431.46	E
247	Telegraph and telephone lines	192.32		192.32	A
249	Signals and interlocking..	144.64		144.64	A
271	Small tools and supplies.....		144.52	144.52	C
272	Removing snow, ice and sand		115.75	115.75	C
274	Injuries to persons.....		114.68	114.68	C
275	Insurance		61.57	61.57	C
276	Stationery and printing..		21.77	21.77	C
Total		\$12,007.26	\$3,491.45	\$15,498.71	
Maintenance of Equipment:					
301	Superintendence		\$487.50	\$487.50	F
302	Shop machinery		195.52	195.52	F
304-a	Power plant machinery shops		34.98	34.98	F
308	Steam locomotives—repairs	12,367.58	.....	12,367.58	G
309, 310	Steam locomotives—depreciation and retirements		1,211.52	1,211.52	H
332	Injuries to persons.....		52.82	52.82	F
333	Insurance		83.76	83.76	F
334	Stationery and printing..		22.54	22.54	F
Total		\$12,367.58	\$2,088.64	\$14,456.22	
Transportation Expenses:					
371	Superintendence		\$2,249.61	\$2,249.61	I
373	Station employees	\$255.84	.....	255.84	A
377	Yardmasters and yard clerks	10,784.55		10,784.55	A
378	Yard conductors and brakemen	23,117.06		23,117.06	A
379	Yard switch and signal tenders	5,376.55		5,376.55	A
380	Yard enginemen	15,365.88		15,365.88	A
382	Fuel for yard locomotives	20,519.12		20,519.12	A
385	Water for yard locomotives	600.11		600.11	K
386	Lubricants for yard locomotives	363.03		363.03	A
387	Other supplies for yard locomotives	469.18		469.18	L
288	Engine house expenses—yard locomotives	6,871.84		6,871.84	L
389	Yard supplies and expenses.....	770.11		770.11	L
405	Crossing protection	766.68		766.68	A
407	Tel'g'h and telephone oper'n	731.36		731.36	A
410	Stationery and printing.....		855.17	855.17	I
414	Insurance		71.75	71.75	I
415	Clearing wrecks		436.75	436.75	I
418	Loss and damage—freight		4,763.40	4,763.40	I
420	Injuries to persons.....		1,395.28	1,395.28	I
Total		\$85,991.31	\$9,771.96	\$95,763.27	
General Expenses:					
451, 459	Total		\$4,339.05	\$4,339.05	M
Total operating expenses.....		\$110,366.15	\$19,691.10	\$130,057.25	
Total engine hours.....				11,848	
Cost per engine hour.....				\$10.98	

FIXED CHARGES

Item	Fixed charges	Bases of allocation
Taxes	\$18,105.25	N
Return on railroad property.....	105,433.70	O
Return on equipment.....	1,817.28	P
Total	\$125,356.23	
Total engine hours.....	11,848	
Cost per engine hour.....	\$10.58	
Grand total cost per engine hour.....	21.56	

EXHIBIT B.—ANALYSIS OF COST OF TYPICAL MOVES UNDER SWITCHING TARIFFS. BOSTON FREIGHT TERMINAL

Movement	No. of moves	Cost per car
<i>Between Boston Freight Terminal Yards and Sidings and Boston & Albany Railroad:</i>		
Yard 1 to B. & A.	7	\$10.17
B. & A. to Yard 1.....	8	11.05
Yard 2 to B. & A.	7	8.55
B. & A. to Yard 2.....	6	7.58
Yard 3 to B. & A.	7	10.17
B. & A. to Yard 3.....	8	10.84
Yard 5 to B. & A.	7	8.87
B. & A. to Yard 5.....	8	9.43
Yard 7 to B. & A.	7	9.20
B. & A. to Yard 7.....	8	9.87
State Yard to B. & A.	7	8.98
B. & A. to State Yard.....	8	9.65
Mass. Ave. & Southampton St. to B. & A.	7	10.28
B. & A. to Mass. Ave. & Southampton St.....	8	10.94
Average		9.92

Between Boston Freight Terminal Yards and Sidings and Union Freight Railroad:

Yard 1 to Union Freight.....	6	\$7.58
Union Freight to Yard 1.....	7	8.47
Yard 2 to Union Freight.....	6	5.96
Union Freight to Yard 2.....	5	1.99
Yard 3 to Union Freight.....	6	7.68
Union Freight to Yard 3.....	7	8.25
Yard 5 to Union Freight.....	6	6.29
Union Freight to Yard 5.....	7	6.85
Yard 7 to Union Freight.....	6	6.61
Union Freight to Yard 7.....	7	7.28
State Yard to Union Freight.....	6	6.40
Union Freight to State Yard.....	7	7.07
Mass. Ave. & Southampton St. to Union Freight.....	6	7.69
Union Freight to Mass. Ave. & Southampton St.....	7	8.70
Average		7.17
<i>Intra-Terminal Moves:</i>		
Yard 2 to Yard 3.....	8	\$9.31
Yard 5 to Yard 1.....	8	9.66
Yard 5 to Yard 6.....	8	9.21
State Yard to Yard 7.....	8	9.17
Yard 1 to Mass. Ave. and Southampton St.....	9	12.25
Average		10.07

Key to Method of Allocation

- A—For all these accounts, the actual expenses chargeable to switching in the Boston Freight Terminal Yards for this period are shown.
- B—These figures are based on an analysis of the actual expenses of maintenance for the Boston Freight Terminal Yards for six representative months of the year 1919—March, May, June, August, September and November.
- C—These expenses are allocated from corresponding expenses of the railroad for the calendar year; the basis of allocation being the percentage which the total of Accounts Nos. 202, 212, 214, 216, 218, 220, 231, 233, 235, 247 and 249 in this study bears to the total of Accounts 202-261, both inclusive, for the railroad for the calendar year.
- D—Based on the proportion which the amount of coal used in Boston Freight Terminal switching service bears to the total amount of coal consumed on the railroad for the calendar year. This proportion was then applied to Accounts 231 and 233 for the calendar year for the railroad.
- E—Based on the proportion which switching locomotive miles for the Boston Freight Terminal bears to the total locomotive miles for the railroad; this proportion being applied to the total of Account 235 for the railroad for the calendar year.
- F—These expenses are allocated from the corresponding expenses of the railroad for the calendar year; the basis of allocation being the percentage which Account 308 in this study bears to the total of Accounts Nos. 308, 311, 314, 317, 320, 323, 326 and 329 for the railroad for the calendar year.
- G—Running repairs and back shop repairs were computed separately. The running repairs (labor and material) are based on the actual charges against switch engines in the Boston Freight Terminal for the period of the study. Back shop repairs are based on the average cost per mile for back shop repairs for the type of switch engine working in the Boston Freight Terminal, multiplied by the actual switch engine miles of engines in the Boston Freight Terminal for the period of the study.
- H—Based on depreciation rate of four per cent per year, applied to the original cost, plus cost of additions for the engines working in the Boston Freight Terminal.
- I—These expenses were allocated from the corresponding expenses of the railroad for the calendar year; the basis of allocation being the percentage which Accounts Nos. 373, 377, 378, 379, 380, 382, 385, 386, 387, 388, 389, 405 and 407 in this study bears to the total of Accounts 373-408, both inclusive, eliminating Accounts 390 and 391, for the railroad for the calendar year.
- K—Allocated on the basis of an engineering formula for the amount of water evaporated per pound of coal burned, applied to the actual coal burned by switching locomotives in the Boston Freight Terminal; amount of water so obtained being charged out at the water rate for the city of Boston.
- L—Based on the average cost per switching locomotive mile for the railroad for the calendar year, applied to the switching locomotive miles in the Boston Freight Terminal for the period of the study.
- M—These expenses were allocated from the total of Accounts 451-459, both inclusive, of the railroad for the calendar year; the basis of allocation being the percentage which the total of the Maintenance of Way, Maintenance of Equipment and Transportation Expenses in the study bears to the total Maintenance of Way, Maintenance of Equipment, Traffic, Transportation and Miscellaneous Operating Expenses of the railroad for the calendar year.
- N—Based on the taxes paid on assessed valuation of the Boston Freight Terminal at the present tax rate for Boston, the valuation excluding freight houses, piers, docks, coal dock and other items not directly concerned in switching operation at the Boston Freight Terminal.
- O—Based on a six per cent return on the value of the land and yard facilities in the Boston Freight Terminal, the valuation excluding freight houses, piers, docks, coal dock and other items not directly concerned in switching operation at the Boston Freight Terminal.
- P—Based on 6 per cent return of the original cost, plus cost of additions of locomotives used in the Boston Freight Terminal.

Note 1. In making the direct charges and allocations in the manner above described, figures are, in all cases, reduced to a basis of the eight weeks' period which is covered by the study. Note 2. The term "railroad" refers, in each case, to the New York, New Haven & Hartford. Note 3. The term "calendar year" refers to the year ending December 31, 1919.

Boston Railroad Map

The Union Freight Railroad, which is laid in the street, extending from the South station to the North station, is shown in our sketch by a dotted line. The Boston & Albany is shown in a broken line. Those parts of the line which are broken into very short pieces (parts of the Grand Junction branch) represent sections where the tracks of the Boston & Maine and those of the Boston & Albany are side by side. All of the other lines on the map belong to the Boston & Maine, or the New York, New Haven & Hartford; the Boston & Maine's lines being on the north side of the city and those of the New Haven road on the south side.

Numbers on the map mean—

- 1—N. Y., N. H. & H. principal freight terminal.
- 2—Mystic Dock, Boston & Maine.
- 3—Boston & Maine docks.
- 4—South Station.
- 5—North Station.
- 6—East Boston docks.
- 7—Back Bay Station.
- 8—South Boston Station.
- 9—Brookline Junction.

The yards of the Boston & Albany are: (a) at the terminus, near South station; (b) between Back Bay (Huntington avenue) and Brookline Junction; (c) near the intersection of the main line and the Grand Junction Branch; (d) at East Boston.

The yards referred to in Exhibit B, except those of the Boston & Albany and the Union Freight Railroad, are all parts of the New Haven freight terminal. The principal part of this terminal, indicated by Fig. 1 on the map, is on and near the tract called South Boston docks. These terminal tracks join the main line tracks just south of the South Boston passenger station, indicated on the map by "8." The Massachusetts avenue yard and the Southampton street yard are south of this junction.

At the time when these studies were made, the connection between the New Haven road and the Union Freight Railroad was made at the west side of South Station (4), but since then a connection has been made by way of Northern avenue bridge, the route shown by a short line of crosses, extending west from "1."

Each road has within the metropolitan district several small delivery yards which serve the industries of their particular localities. Some of these yards are merely auxiliaries to the main plant, within switching limits; others are operated as independent freight stations. The Boston & Albany's Grand Junction freight branch, connecting with the Boston & Maine and to the East Boston elevator and docks is nine miles long.

The Union Freight Railroad on Atlantic avenue accommodates numerous industries having private tracks and also handles the interchange between the New Haven and the Boston & Maine.

It has been estimated that the Boston terminal facilities provide accommodations for about 14,000 cars. The Boston & Maine has the largest plant, and can handle in the vicinity of 8,500; the New Haven, somewhere above 3,000; and the Boston & Albany the balance. The Boston & Maine terminal, which is operated as a division, is divided into 24 yards, and under normal traffic uses 45 switching crews. The New Haven plant at South Boston has 10 yard units, and under capacity operation uses 30 crews. The Boston & Albany terminal consists of several rather widely separated units, and under good business conditions, requires 25 crews. The Union Freight generally employs five crews; so that over 100 yard crews are needed to handle the city's normal traffic.

There is comparatively little car floating in Boston Harbor, although facilities for this purpose exist and are in regular use, principally between the railroads and the steamship docks.

The Interstate Commerce Commission's report on the switching rate controversy discussed at length the details of the claims made by the wool merchants and the arguments

presented by the railroads. On the question of costs it said, in part:

The Commission's Criticisms

Defendants contend that the cost of switching at Boston is high and greater than at other comparable points. Studies of costs at Boston were submitted by the New Haven and the Maine, but not by the Albany. The New Haven figures include as costs not only operating expenses and taxes but a 6 per cent return on the estimated value of land, tracks, and locomotives used for switching purposes.

During the study period of eight weeks at the New Haven terminal, 42,890 loaded cars were received or forwarded at Boston, including loaded cars interchanged with connections. The total cost during that period is given as \$255,413, made up of \$130,057 for operating expenses plus \$125,356 for taxes and the 6 per cent return. The average cost of handling each loaded car received or forwarded, so computed, was \$5.95 per car. Confined to operating expenses alone it was \$3.03 per car.

A striking feature of these studies is the large part of the total estimated cost which is accounted for by so-called fixed charges. In the case of the New Haven these account for 49 per cent of the total, and in the case of the Maine for 34 per cent. The great item in these amounts is a 6 per cent return on the estimated "present value" of the land used in switching operations. This present value is based upon what is said to be the market value of adjoining property, and, as much of the terminal land at Boston was acquired many years ago, it is in general vastly in excess of original cost. If the New Haven or the Maine, therefore, should earn 6 per cent upon this present value, a very handsome profit on actual investment would be realized. On the other hand, this liberality in estimating switching "costs" is in part offset by the fact that the figures were prepared early in 1920, when railroad wages were somewhat lower than they are now.

The cost figures are open to other criticisms. The controlling factor in the computation seems to be the number of cars handled in each switch movement. The observations, however, were made in winter, when the volume of business was relatively light and costs of operation probably above normal. Conditions in switching yards change continually and economy of operation necessitates increase or reduction of the switching force from time to time, with realignment of the work in each case. The interrelation of line-haul and switching traffic at Boston is such that it is exceedingly difficult, if it is possible at all, to segregate properly the expense of handling purely switching movements from the expense of switching through line-haul cars. Switching costs can probably be ascertained with approximate accuracy only through a system of accounts designed for the purpose and maintained over a considerable period of time.

The record also furnishes ground for doubt whether switching operations in Boston are economically conducted in all respects. A carload of freight for export arriving over the Fitchburg division of the Maine for delivery to ship side at the Mystic docks is switched into seven distinct yards and classified six different times during the movement to the docks from the West Cambridge yard. Defendants, however, maintain that the costs shown by their studies are conservative, and that nothing is allowed for weighing of cars, or for car maintenance, or for maintenance of main-line road-bed and track used to a certain extent in switching operations. Cost studies of this character are necessarily based upon many more or less arbitrary assumptions and at best furnish only rough approximations. Upon the whole, we think that the figures submitted by the Maine and the New Haven do not understate the real costs and are liberal, even under existing conditions, particularly when the land values used are taken into consideration. They are of especial value in indicating the relative costs of certain general classes of switching movements.

Executives and Train Service Leaders Confer

Meeting in New York Thursday Adjourns Until Friday,
With Secrecy Surrounding Proceedings

AS THE *Railway Age* goes to press on Friday morning developments in the railway shopmen's strike situation await the outcome of the conference between the committee of the railway executives and the leaders of the train service brotherhoods and also the recommendations which may be made by President Harding in his address to Congress.

The conference between the railway executives and the train service leaders began at the offices of the Association of Railway Executives, 61 Broadway, New York on Thursday afternoon at 2 o'clock. The first session adjourned at 6:15 and the only announcement made then was that the meeting had adjourned until the following morning. This was contained in a statement issued by Chairman T. DeWitt Cuyler of the Association of Railway Executives as follows:

"A conference was held this afternoon between a committee of the carriers and the heads of the five train service organizations, who wished it to be distinctly understood that they appeared as mediators of their own motion. A discussion of the present railroad situation, so far as it relates to the shopcraft strike took place. The questions involved were discussed with the earnest desire to arrive at a solution of the problem, if possible. No definite conclusion was arrived at, and the conference was adjourned until tomorrow morning."

Representatives at the Meeting

The representatives of the train service organizations were Warren S. Stone, president of the Brotherhood of Locomotive Engineers; L. E. Sheppard, president of the Order of Railroad Conductors; W. N. Doak, vice-president of the Brotherhood of Railroad Trainmen; E. H. Robertson, president of the Brotherhood of Locomotive Firemen and Enginemen, and T. C. Cashen, president of the Switchmen's Union of America. Representatives of the 16 other striking and non-striking railway unions, including B. M. Jewell, president of the Railway Employees' Department of the American Federation of Labor, were in New York and within call, had it been advisable or necessary to bring them into the conference.

Those who represented the railway executives in the conference included T. DeWitt Cuyler, chairman of the Association of Railway Executives; W. W. Atterbury, vice-president of the Pennsylvania; Howard Elliott, chairman of the Northern Pacific; Hale Holden, president of the Chicago, Burlington & Quincy; Julius Kruttschnitt, chairman of the Southern Pacific; W. L. Mapother, president of the Louisville & Nashville; C. H. Markham, president of the Illinois Central, and A. H. Smith, president of the New York Central. Alfred P. Thom, vice-chairman and general counsel of the Association of Railway Executives, was also present. This was the same committee which presented to President Harding on Saturday the majority and minority resolutions voted at the Executives' meeting the previous day.

The results of the Thursday afternoon session of the executives and train service leaders were shrouded in secrecy. No inkling whatever is available at this time as to what had been discussed at the meeting. It is naturally to be presumed that seniority was a leading issue. The four-hour session and the fact that the meeting was carried over until the next day, without any pronouncements being made by either side gave rise to considerable optimism as to the outcome.

During the evening the train service leaders met with the shopmen's leaders for whom they have intervened. No statement was given out about the meeting.

B. M. Jewell Discusses Car Supply

B. M. Jewell, head of the Railroad Department of the American Federation of Labor, gave out a prepared statement dealing with the demands upon railroad equipment from the settlement of the coal strike and not at all with the day's proceedings.

Mr. Jewell's statement follows:

"The settlement of the coal strike will, to a large degree, determine the settlement of the railroad strike. The resumption of coal mining and the vastly increased demand for coal resulting from depleted stocks will force the railroads to move more coal in the next few weeks than ever before in history. This means a record-breaking demand for cars.

"In the face of this demand there is at the present time a record-breaking shortage of good order coal equipment. The railroads will be required by urgent necessity to repair their coal cars in the shortest possible time. This will bring the most insistent kind of pressure upon the roads to get a maximum number of skilled mechanics into their shops. It is safe to say that there will be places for one and a half times the normal number of men in coal repair shops alone.

"The normal number of cars suitable for moving coal in need of repairs is about 5 per cent of the total number on the line. Even before the strike was called, there was an unprecedented proportion of bad order cars. The American Railway Association figures show that on July 1, 14½ per cent needed repairs—nearly three times the normal number. On July 15, before the effects of the strike had become to be seriously felt, the association figures showed 15½ per cent in bad order—and this is a low estimate because some of the roads hardest hit by the strike refused to give out the facts. These are the latest published figures. We estimate that at the present time, however, there are from 20 to 25 per cent of the total number of coal cars in need of repairs—about 200,000 cars.

Effect Will Be Serious, Says Jewell

"Even in normal times with a low percentage of bad order equipment, there are not enough coal cars to meet the demand. The year 1920 is a typical illustration. In August, 1920, there was an average weekly shortage of no less than 44,927 cars in spite of the fact that there had been no strike, coal reserves were high and business was facing a period of depression. With reserves depleted by four and a half months' tie-up of the mines and with business approaching a boom, in addition to the normal demand, it is safe to say there would be a shortage of at least 75,000 cars a week, the moment the strike is settled, owing to the requirements of traffic alone. The abnormal number of cars now out of service for want of repairs will raise the weekly shortage of cars close to 100,000.

"The effect of this shortage on coal consumers will be serious in the extreme, even if the railroad strike is settled this week. A shortage of 100,000 coal cars a week means that 30 per cent of the coal mined will be withheld from the consumer through lack of transportation facilities. The mines produce about 1,000,000 tons of coal a week when operating at a maximum. The average coal car capacity is about forty-five tons. A shortage of 100,000 cars a week will, therefore, prevent 4,500,000 tons of coal a week from reaching the consumer—or 22 per cent of the weekly output."

President May Suggest Changes in Law

President Harding was to address Congress Thursday but postponed it until Friday because of the conference in New York. The impression prevails at this writing that he will review the facts relating to the shopmen's strike and possibly suggest some changes in the Transportation Act. One of these suggestions is expected to be that the headquarters of the Labor Board be moved from Chicago to Washington so that it may be in close touch with the Interstate Commerce Commission and other government officers.

President's Plan Rejected by Shop Crafts

Railroads Accept Conditionally. Committee of Non-Striking Labor Leaders Reopens Negotiations

WASHINGTON, D. C.

IT WAS OFFICIALLY announced at the White House on Tuesday that the President would appear before the Congress within 48 hours and place the entire strike situation before it, giving the whole story as the President has learned it through weeks of interviews, correspondence and mediation with representatives of both sides. He proposed to lay the situation fairly and frankly before Congress, and in that way before the country, but it was stated that the President was not yet in a position to say what, if any, recommendations he would make, as the character of his statement might be affected by the changing conditions as they exist at the time. It was stated that the President will not interfere with the efforts of anybody to bring about a settlement outside, but so far as the Executive is concerned there is no ground on which to stand except that which he has already taken. The announcement was made following a Cabinet meeting devoted to a discussion of the strike situation and after the President had conferred with Senators Watson and Kellogg.

The President's latest proposal for a settlement of the shop strike having failed because of its rejection by the shop crafts, although the railroads had agreed to take back as many of the strikers that have not been guilty of violence as they can find room for and to submit unadjusted questions as to seniority to the Labor Board, the principal developments at Washington during the early part of the week centered around the efforts of the labor organization executives to find a way to reopen negotiations for a settlement.

The committee of railway executives which came to Washington on Saturday to present the replies of the railroads to the President's proposal of August 7 left the city on Sunday, after having rejected a proposal that the question of seniority be submitted to arbitration outside the Labor Board, and prepared to resume their efforts to maintain service without the assistance of the shop craft organizations. They also hoped they had been able to convince the President that continued activity in Washington looking toward a compromise settlement would merely delay the collapse of the strike by encouraging the men still out to hold out a little longer.

Non-Striking Labor Leaders Acting as Mediators

Meanwhile the officers of the 17 railroad labor organizations, 8 of them on strike and 9 not striking or only "sporadically" striking, remain in Washington, the striking organizations having placed their case in the hands of the other labor leaders who are still trying to open a way for the return of the strikers to their former jobs, without any consequences to themselves in the way of impairment of seniority rights as the result of their "temporary declination to render service." Incidentally, the non-striking organizations are manifesting considerable interest on their own account in trying to prevent the establishment of a precedent that when members of a labor organization go on strike they forfeit their rights as employees.

The White House statement on Tuesday was taken as a clear indication that the President is through with acting as a mediator and offering settlement proposals and is now prepared to exercise the authority of the government to maintain law and order in the hope that with reasonable protection for the men who are willing to work the railroads will be able to maintain an adequate service.

Also the Attorney General, with the approval of the President, has taken steps to deal under the conspiracy statutes

with the train and engine men who have allowed their fear of being accidentally shot by armed guards to overtake them suddenly at points where their abandonment of trains happens to be most inconvenient to the passengers or will interfere most with coal movement.

Conferences at the White House

The President's proposal that the strike be called off and the question of seniority be submitted to the Labor Board, as well as the entire situation, was considered at a meeting of the seven striking organizations—the six shop crafts and the stationary firemen and oilers—on Thursday and again at the general conference of the 17 railroad labor organization executives under the chairmanship of W. S. Stone, grand chief of the Brotherhood of Locomotive Engineers, on Friday and Saturday morning. The striking organizations then had no further conference with the President but their reply was delivered at the White House about noon Saturday by W. H. Johnston, president of the International Association of Machinists.

At 2:30 the heads of the nine non-striking organizations went into conference with the President. Secretaries Hoover and Davis, Chairman Hooper of the Labor Board, and Senator Cummins also took part in the conference. At 4:30 the committee of railway executives, headed by Mr. Cuyler, arrived and went into conference with the President, while the labor leaders were taken into another room. The labor leaders left the White House about 6:30 and the executives about 7:00, both explaining that their statements to the President would not be made public for the present, at his request.

Shopmen's Case in Hands of Brotherhood Leaders

L. E. Sheppard, president of the Order of Railroad Conductors, told the newspaper men that the representatives of the organizations not on strike had told the President "of the troubles we are having growing out of the strike, our difficulty in keeping everyone at work, the condition of affairs in the way of engines and equipment that are in bad shape," and that they also had offered their good offices if they could be of any service or act as mediators in the controversy with the shopmen. "We are quite prepared to do anything we can to help the situation," he said. "The shopmen have left their case in our hands." Mr. Sheppard said that a formal statement had been made to the President which might be made public later, and that a committee had been appointed to remain in Washington for a few days. He said the labor leaders had not seen the railway executives and did not know what they would do. He also appealed to the newspaper men to write as conservatively as possible, avoiding "sensational stuff" and to "get after the headline writers."

The labor leaders who were at the White House conference were: Warren S. Stone, grand chief, Brotherhood of Locomotive Engineers; L. E. Sheppard, president, Order of Railway Conductors; D. B. Robertson, president, Brotherhood of Locomotive Firemen and Enginemen; W. N. Doak, vice-president, Brotherhood of Railroad Trainmen; E. F. Grable, president, United Brotherhood of Maintenance of Way Employees and Railroad Shop Laborers; T. C. Cashen, president, Switchmen's Union; E. J. Manion, president, Order of Railroad Telegraphers; J. G. Luhrs, president, Train Despatchers Association; and D. W. Helt, president, Brotherhood of Railroad Signalmen. E. H. Fitzgerald,

president, Brotherhood of Railway Clerks, was not included because his organization is striking on some roads.

Executives and Labor Leaders Meet

Late Saturday evening it was discovered that the railway executives and some of the labor leaders had held a conference at the Willard Hotel, which, it is understood, had been arranged by the President, and at which the proposal for outside arbitration was rejected by the railroad executives. The latter again conferred with the President for about an hour and a half on Sunday morning and then left the city. The labor leaders did not meet with the President on Sunday, but the brotherhood officers were in conference among themselves.

During the day the President gave permission for the release of the replies that had been made to his proposal and the statement presented to him by the labor leaders acting as mediators. Although the text of the shopcrafts' reply was not made public until Tuesday it was learned that they had definitely rejected the proposal and said that they could agree to no settlement that did not guarantee the restoration of seniority rights unimpaired, as proposed by the President on July 31.

Majority and Minority Reports of Railway Executives

The replies of the railroads were announced in the following statement issued by Thomas DeWitt Cuyler, chairman of the Association of Railway Executives:

"At the meeting of the railroads in New York on Friday, August 11, 1922, they with practical unanimity responded favorably to the President's call that the seniority question be left to the United States Railroad Labor Board.

"Approximately three-quarters of the mileage responded favorably to his call that all striking shop craftsmen be reemployed, and the balance that all such strikers be reemployed as far as practicable.

"The resolutions acted on by the meeting have been submitted to the President.

"The following resolutions were adopted by roads having a mileage of 151,824 miles:

"The telegram of the President, dated August 7, 1922, having been considered, and in response to his call to the carriers and the striking workmen, the following resolutions were adopted:

"RESOLVED, that the proposal of the President to the striking workmen to return to work, and to the carriers to assign them to work, leaving the disputed question of seniority to the Labor Board under the provisions of the Transportation Act for decision, be accepted, understanding as we do that such acceptance involves no surrender of the principles with respect to seniority adopted by the carriers on August 1, 1922, but recognizes that the proposal of the President invokes the jurisdiction of the Labor Board under the Transportation Act to pass upon the relative seniority of those loyal employees who have remained at work and those new employees who have since accepted service (the rights of both of which classes to seniority we feel bound in justice to defend before the Labor Board) with the strikers who may re-enter the service under the proposal of the President.

"Therefore, be it FURTHER RESOLVED:

"(a)—All former employees who have not been guilty of proven violence against the employees or property of the railroad shall be assigned to their former positions where vacancies exist.

"(b)—Where the positions they formerly held have been filled, other employment of the same class will be found for such employees as have committed no acts of proven violence against the employees or the property of the railroad.

"(c)—If, after these men have been assigned, questions of seniority arise with them which cannot be settled locally, they will be referred to the United States Railroad Labor Board for review.

"FURTHER RESOLVED, that the strike is to be called off with the understanding and agreement by all parties that no intimidation nor oppression shall be practiced or permitted as against any of the employees who have remained or have taken service, or against those who may return to service under the proposal of the President."

The following minority report was supported by roads having a mileage of 57,222 miles.

"RESOLVED, that the Chairman be authorized to reply to the President's telegram of August 7th, that the railroads represented at this meeting are willing that:

"(a)—All former employees who have not been guilty of violence against the employers' or the property of the railroads shall be assigned to their former positions where vacancies exist.

"(b)—If after these men have been assigned, questions of their seniority arise which cannot be settled locally, they shall be referred to the United States Railroad Labor Board for review.

"(c)—In agreeing to submit questions of seniority as provided above to the United States Railroad Labor Board for review, it is understood that neither the railroads nor their employees shall be deprived of the right of review by the courts of such decisions if they affect agreements in existence between any railroad and its employees."

At the meeting in New York on August 11 the President's proposal of August 7 was referred to a committee consisting of R. S. Lovett, W. R. Cole, Hale Holden, W. W. Atterbury, C. H. Markham, A. H. Smith, and Julius Kruttschnitt, which brought in two reports which were then debated at length in the general meeting. The vote in favor of the majority report was 191 to 79 (each road having one vote and additional votes being accorded on a mileage basis), while the vote on the minority report was 77 to 192.

The roads voting for the majority report were:

Ann Arbor.
Atchison, Topeka & Santa Fe.
Gulf, Colorado & Santa Fe.
Baltimore & Ohio.
Buffalo, Rochester & Pittsburgh.
Central of Georgia.
Chesapeake & Ohio Lines.
Chicago & Northwestern.
Chicago, Burlington & Quincy.
Colorado & Southern.
Chicago & Western Indiana.
Chicago Great Western.
Chicago, Indianapolis & Louisville.
Chicago, Milwaukee & St. Paul.
Chicago, Rock Island & Pacific.
Chicago, Rock Island & Gulf.
Chicago, St. Paul, Minneapolis & Omaha.
Cumberland & Pennsylvania.
Duluth, South Shore & Atlantic.
El Paso & Southwestern.
Erie.
Grand Trunk System—Lines in U. S.
Grand Trunk Western.
Great Northern.
Hocking Valley.
Illinois Central.
Lake Erie & Western.
Lehigh & New England.
Minneapolis & St. Louis.
Minneapolis, St. Paul & S. S. Marie.
New Orleans Great Northern.
New York Central Lines.
C. C. C. & St. Louis.
Michigan Central.
New York Central—inc. Boston & Albany.
Pittsburgh & Lake Erie.
New York, Chicago & St. Louis.
New York, Ontario & Western.
Norfolk & Western.
Norfolk Southern.
Northern Pacific.
Northwestern Pacific.
Philadelphia & Reading.
Rutland.
St. Louis-San Francisco.
San Antonio & Aransas Pass.
Seaboard Air Line.
Southern Pacific Company.
Southern Pacific Lines in Texas and Louisiana.
Ulster & Delaware.
Union Pacific.
Oregon Short Line.
Oregon-Washington R. R. & Navigation Co.
Virginian.
Western Pacific.
Wheeling & Lake Erie.
Trinity & Brazos Valley.

The roads voting for the minority report were:

Atlanta & West Point.
Western Railway of Alabama.
Atlantic Coast Line.
Boston & Maine.
Central of New Jersey.
Chicago & Eastern Illinois.
Chicago & Western Indiana.
Chicago Great Western.
Cincinnati, Indianapolis & Western.
Delaware & Hudson Company.
Delaware, Lackawanna & Western.
Denver & Salt Lake.
Florida East Coast.
Gulf Coast Lines.
Gulf, Mobile & Northern.
Kansas City Southern.
Lehigh Valley.
Long Island.
Louisville & Nashville.
Midland Valley.
Missouri, Kansas & Texas.
M. K. & T. of Texas.
Wichita Falls & Northwestern.

Missouri Pacific.
Nashville, Chattanooga & St. Louis.
New York, New Haven & Hartford.
Pennsylvania System.
Pere Marquette.
Richmond, Fredericksburg & Potomac.
Texas & Pacific.
Wabash.

Committee Takes Report to President

A committee consisting of Mr. Cuyler as chairman and Howard Elliott, W. L. Mapother, Hale Holden, W. W. Atterbury, C. H. Markham, A. H. Smith, and Julius Kruttschnitt was then appointed to take the report to the President not only for the purpose of submitting it but also in order to have such conference as the President might think desirable. In presenting these resolutions it was pointed out that the majority vote of members of the Association of Railway Executives cannot bind the minority and that the different positions taken by different roads represents differences in the equities of their situations without sacrifice of principle. Many of the roads felt that with the large increase in business in sight and the accumulation of maintenance work on cars and locomotives even before the strike they could readily make use of a greater number of men than they had in service when the strike was called, while the roads that voted for the minority report have taken on so many new men and have given such definite assurances of employment to those who prove competent as to be unable to agree unreservedly to the President's proposal.

Shopmen's Case in Hands of Brotherhoods

After the reply of the railway executives had been made public Sunday afternoon and it had been stated that the President had given permission for the release of the reply of the organizations on strike and the letter from the non-striking organizations, newspaper men were told that copies were ready and that they would be given out by E. J. Manion as soon as word had been received from Mr. Stone. Mr. Stone and the other brotherhood executives were then holding a meeting of their own. Early in the evening Mr. Sheppard, Mr. Doak and Mr. Robertson, without Mr. Stone, joined some of the other labor leaders and after a consultation Mr. Sheppard informed the waiting newspaper men that it had been decided not to give out the statements made to the President. Although Mr. Stone is chairman of the labor leaders' committee and Mr. Manion secretary, Mr. Sheppard apparently was elected as the official spokesman.

"We don't know just where we are at," he said. "We are awaiting developments and don't want to say or do anything to embarrass either side. We are hoping to find some way to help the situation. Whether we can or not is problematical. We will stay here at least until Congress convenes or if the President wants to see us. We will keep the same committee here and as soon as we can make a statement that will help will make it."

Mr. Sheppard said that the railroads have worked the seniority issue "overtime." "It is only one of several fundamentals applying to men who are on strike," he said. "The real issue as we see it is the status of men on strike. We hold that they are not dismissed from service, they have not resigned, they are awaiting the settlement of their difficulties and all their rights as employees are merely suspended so to speak, contingent upon whether they go back. This applies to their right to strike, pension rights, insurance rights and seniority. Seniority is only one of the rights involved. In all disputes in years gone by we have usually gone back with all our rights by agreement and we see no reason why the policy of the companies should be changed this time. I am merely expressing one of the fundamental principles of labor organizations, the rights of those temporarily declining to give service."

Mr. Sheppard denied that the non-striking organizations had proposed arbitration of the seniority question but de-

clined to state who had proposed it. He said they had been asked about it but considered it unwise to arbitrate the rights of men on strike.

Mr. Sheppard said "the shopmen's case is in our hands and we are not taking any chance of closing the door to negotiations. If the President wants to see us we are at his service." He said the labor leaders had been notified by Secretary Hoover that the railway executives had left the city.

On Monday the railroad labor leaders held a meeting lasting nearly all day and Mr. Sheppard and Mr. Doak called on Secretary of Labor Davis who arranged another conference with the President for five o'clock. They were with the President for about two hours and Mr. Sheppard announced afterward that he was hopeful a meeting with some of the railroad executives "not so tenacious as the others" and who might see the "fundamental rights of men on strike" are involved rather than the question of seniority, could be arranged. Mr. Stone also had a conference Monday with President Willard of the Baltimore & Ohio and on Tuesday he announced that the labor leaders had asked Mr. Cuyler for another conference with the executives.

It is understood that the labor leaders appealed to the President to use his influence to bring about another conference with the railroad executives but that he was not favorable to the proposal that he take any further action in the capacity of a mediator. He is said to have approved of the spirit shown by the railroads and to have taken the position that he cannot fairly ask any further modification of their position.

Mr. Stone asked that a special committee be appointed to meet with the executives of the five organizations of transportation employees to consider an adjustment of the shop strike controversy at New York on Thursday. Later it was announced that Mr. Cuyler had agreed to a conference. The account of the meeting will be found on another page of the present issue.

Shop Crafts Reject Proposal

The reply of the shop crafts to the President's proposal was finally given out on Tuesday, as follows:

"We are in receipt of your telegram of August 7, referring to your message to us of July 31, and our reply of August 2.

"In your telegram of August 7, you request that striking railroad employees return to work and leave to the decision of the Railroad Labor Board, after they have returned to work, the question of seniority as covered in the third paragraph of your telegram of July 31.

"This request has been fully considered by the Executive Council of the Railway Employees Department who represent the railway employees affected, and you are hereby advised that the proposal contained in your telegram of August 7, has been unanimously declined for, among others, the following reasons:

"1. On July 31, you submitted to the representatives of the railroad employees in question and to the railway managers 'the terms of agreement upon which the railway managers and united shop craft workers are to unite preliminary to calling off the existing strike.'

"Your terms of agreement above referred to were accepted by the representatives of the employees. On the seniority question your terms of agreement were, 'all employees now on strike to be returned to work to their former positions with seniority and other rights unimpaired. The representatives of the carriers and the representatives of the employees. On the seniority question there will be no discrimination by either party against the employees who did or did not strike.' This clearly provides that the seniority question was to be settled before the employees returned to work. Your proposal of August 7, is that it be agreed to, or rather disposed of, only after they have returned to work.

"This strike cannot be, and no other railroad strike has been settled until it was agreed that all employees on strike are to be returned to work and to their former positions with seniority and other rights unimpaired.

"2. Seniority was not and is not now, by right, an issue or a dispute in this strike. The authors of the Transportation Act have, on many occasions, stated that there is no penalty in the Transportation Act against employees who strike when an in-

justice is done through a decision of the Railroad Labor Board. Admittedly they have the right to strike and, therefore, they do not forfeit their standing as railroad employees because they strike. Any other construction of the law would read into the Transportation Act a penalty which is not contained therein.

"3. On August 2, we acquiesced in the terms of agreement which you declared to be just, fair and reasonable, and we are willing now, in the interest of all concerned to settle the strike in accordance with the terms of that agreement. We are, of course, unable to understand why, after we had accepted your own terms of agreement, you should now request us to accept a proposal which is directly in conflict with your former proposed agreement.

"4. Your latest proposal is impracticable and would create a chaotic condition because of the undetermined seniority status of the employees.

"Railroad employees are ever mindful of the public interest. They have accepted your own terms of agreement, which called for no sacrifice on the part of the railroad executives, but which did require that the employees make a concession of practically every issue which brought about the strike. We have repeatedly called attention to the fact that the campaign against the organized railroad employees was a part of the general "open shop" drive, and if press statements are correct, the managers of some of the railroads the last few days have frankly admitted that they do not desire at this time to settle the strike, but hope to be permitted to continue their efforts to disintegrate the organizations of railroad employees."

This was accompanied by the following statement:

"The Association of Railway Executives have again, in their letter of August 11, declined to accept the President's proposition of August 7. They have not even agreed to permit all employees now on strike to return to work.

"The railroad managements apparently intend to be the court, judge and jury for the trial and conviction of those employees whom they do not intend shall return to work."

The Fundamental Issue

The calling in of the executives of the unions not on strike has served to emphasize the fundamental issue which has developed out of the strike as to the status of employees on strike, the labor organizations adhering to the position that men on strike are still employees who are "temporarily refraining from rendering service" and whose rights are only held in suspense, while the railroads are emphasizing the repeated decisions and warnings of the Labor Board that an organization on strike has forfeited its rights and that the loyal and the new employees are the only present employees of the railroads. They insist that if the authority of the Labor Board is to be maintained it must be established that men who defy its decisions are liable to the penalty of loss of their seniority rights; otherwise the public has no more protection against strikes than it had before the Labor Board was established.

In this connection the railroads point to Decision No. 299 (Docket 845) of the U. S. Labor Board of October 29, 1921, in which it said:

"The Board further points out for the consideration of employees interested that when such action does result in a strike, the organization so acting has forfeited its rights and the rights of its members in and to the provisions and benefits of all contracts theretofore existing, and the employees so striking have voluntarily removed themselves from the classes entitled to appeal to this board for relief and protection."

The same idea was repeated in the resolutions adopted by the board on July 3, and Chairman Hooper had later issued a statement, while the roads were still giving their men an opportunity to return warning that if their places were taken the new employees would acquire seniority rights that the board could not ignore. The railroad executives in talking with the President took the position that the only way to put a stop to the constant recurrence of strikes and threats of strikes, is to provide some penalty for striking and that if they should yield to pressure and purchase peace by an unwise compromise the temptation for the organiza-

tions to strike at any time they feel dissatisfied with decisions of the board would still remain. They also explained that the roads as a whole now have approximately half of a normal shop force working overtime and that reports of the condition of equipment circulated by the labor leaders are greatly exaggerated. They pointed to the improvement in coal loading and the large volume of traffic being handled by the railroads in spite of the strike as evidence that in general the public is not suffering as a result of the efforts of the declination of the railroads to surrender.

Prompt Action in Santa Fe Case

The administration acted rather promptly to deal with the new condition created by "sporadic" strikes of train and engine employees who left their trains at places where they could cause the most inconvenience on the pretext that they were afraid of armed guards. The Attorney General took the position that this action of the train employees strongly savored of conspiracy. That "no strike anywhere or of any character can prevent the government from authorizing the agencies of law and order to protect life and property," was the official statement given out at the White House on Friday in response to questions as to the attitude of the government toward strikes against the use of armed guards, and on Saturday, after a conference with the President, Attorney General Daugherty wired to the United States attorney at Los Angeles as follows:

"Report to United States district judge any violation of injunctions and institute proper proceedings to hold violators for contempt. Investigate quickly and ascertain if abandonment of trains was result of conspiracies, by those operating them or others, to interfere with interstate commerce and handling of the mails. If proof sufficient, present matter to grand jury immediately. If grand jury not in session, present to court the necessity of calling special grand jury. Department will give you all necessary support and assistance. The interference with and abandonment of trains strongly indicates the existence of a conspiracy and the government will take all necessary steps to prevent its continuation or like conspiracies elsewhere. Advise me of results."

"It has been reported to this department from certain places, especially southern California and Arizona, on the Santa Fe system," said Mr. Daugherty in announcing this action, "that trains have been and are being abandoned by trainmen and employees. It has occurred at places most inconvenient (Needles, Calif., for instance), and not only results in interference with and obstruction to interstate commerce and the transportation of the mails, but in great suffering and distress among men, women and children who are passengers."

On Monday the telegram was duplicated to the district attorneys for the districts of Northern California, New Mexico and Arizona.

President Harding on Sunday sent a telegram to Governor Campbell of Arizona regarding the marooning of Santa Fe passenger trains at junction points in that state because of their abandonment by their crews, saying: "It is the obligation of the government to relieve the people who are thus shamefully subjected to hardships" and "If you have not the facilities for the relief which I know you will gladly bestow, then army forces at the command of the federal government will be promptly ordered to your assistance. Kindly advise whether such assistance is needed."

Possible Amending of Transportation Act Considered

On Tuesday afternoon the President conferred with Secretary Hoover, Chairman Hooper of the Labor Board, who has been in Washington since Friday discussing possible amendments to the labor provisions of the Transportation Act, and Chairman McChord and Commissioner Aitchison of the Interstate Commerce Commission. Chairman McChord is in direct charge of the commission's bureaus of safety and of locomotive inspection and was in a position to

discuss the condition of equipment as the result of reports of the commission's inspectors and Commissioner Aitchison is particularly in charge of car service matters. The commission is preparing a report in response to the Senate resolution calling for information regarding the enforcement of the locomotive inspection act, with the expectation of submitting it by August 25.

I. C. C. Advises of Progressive

Locomotive Deterioration

After the conference the following correspondence between Chairman McChord and the President was given out:

"DEAR MR. PRESIDENT: In the administration and enforcement of the locomotive inspection and related safety appliance acts of Congress the commission has observed with concern the progressive deterioration of motive power upon certain of the important carriers of the country since July 1, 1922, and during the present strike.

"The effect of deferred repairs is cumulative and becomes increasingly felt as time goes on. The acts which we are called upon to administer leave little discretion with the commission as to enforcement when violations come to light.

"In the continuance of our enforcement of the law we are taking steps and will be compelled to continue to proceed in a manner which must bring about serious withdrawals of motive power from service. Certain violations of the acts we report to the Attorney General for appropriate legal action. With a continuance of existing conditions these will be increasingly frequent.

"Knowing your interest in the matter we felt you should be advised of the facts. Faithfully yours, C. C. McCHORD, Chairman."

"MY DEAR CHAIRMAN McCHORD: I have yours of even date, in which you call to my attention the progressive deterioration of motive power upon some of the important railroad lines of the country as the outgrowth of the prevailing strike. This growing menace to maintained transportation has been called to my attention unofficially in various ways. Under all the circumstances I know of nothing to be done except to insist upon the full enforcement of the law.

"It is a very natural thing under circumstances which exist at the present moment to waive the exactions in behalf of safety in seeking to maintain transportation. In my judgment it is better to have the service diminished rather than attempt the movement of trains on which safety is not assured so far as compliance with the law may provide it.

"I trust that your inspection forces will exert themselves to the utmost in order to be able to pass upon safe equipment, because the official sanction of the government will remove all questions of dispute. Very truly yours, WARREN G. HARDING."

Senator Cummins is reported to have prepared a more or less tentative draft of a bill to give the President full authority to take over the railroads, or any of them, if he should deem the emergency sufficient to require such action. The Senator has denied that he has been requested by the President to draft such a bill, but he admits that he has given some consideration to the form of a bill.

Train Service Men Abandon Trains in Desert Towns

The sporadic strikes of members of the train service brotherhoods at various points have been the outstanding development in the strike situation in the west during the past week. Accompanying this development, though not necessarily a part of it, has come another wave of violence composed not only of intimidation and attacks directed at individual workers, but at railroad property and in many cases at trains and other facilities being used by the public. Thus while the larger moves in the three-cornered controversy are being directed and are centered in Washington, the west, particularly the states of California, Missouri, Illinois and Arizona, is furnishing the ammunition for employees, employers and the government alike in presenting their positions to each other and to the public.

The cue for the strikes of discontented train service employees was found in the approval by the national leaders of the brotherhoods of the walkout on the Elgin, Joliet & Eastern at Joliet, Ill. The trouble at that point was briefly described in last week's issue of the *Railway Age*. The train service employees refused to work until state troops, stationed there following serious rioting a few days previous, were withdrawn. Approval of their action was received from the national officers of some organizations involved on August 10. At the same time telegrams were sent to members of some of the "Big Four" brotherhoods at points where walk-outs seemed to be impending, stating that "the men will not be required or requested to work" unless conditions against which they protest are remedied. The result of this action was to place the matter in the hands of the local organizations and it was only a matter of hours until reports began to be made of the refusal of these employees to operate trains in various sections of the west. By coincidence perhaps these reports all concerned train service employees of large roads which have largely overcome the difficulties accompanying the shopmen's strike and at strategic points where the refusal to operate trains would have far reaching effect.

The first reports of trouble of this kind relate to the Atchison, Topeka & Santa Fe, the train service employees of that road operating in and around Needles, Cal., announcing their refusal to continue work until armed guards were withdrawn from the railroad property at that point.

Another report involved the same road at Bakersfield, Cal., and within a few hours several trains on the Arizona division of that road were tied up. Similarly Fresno, and Barstow, Cal., and Seligman, Ariz., and several other points were involved in later reports on the same day.

Train Service Employees Abandon

Trains in Desert Towns

The most serious consequences of this action on the part of the brotherhood came from the abandonment of passenger trains at desert towns, giving the passengers on these trains no opportunity to prepare for the situation or to escape from the intense heat. Approximately twelve transcontinental trains were stalled at various desert points in the west either through the refusal of employees to operate the trains or a similar refusal at other points, which resulted in an inability to move the trains involved any farther. By August 11 east bound passenger service on the Santa Fe had been tied up, and General Manager I. L. Hibbard announced that no through trains would leave Los Angeles until the trouble on the Arizona division centering at Needles had been cleared up.

Rescue trains, manned largely by railroad officers, immediately began the task of moving several thousand passengers to points of less discomfort, the Santa Fe removing practically all of the passengers marooned at Needles on August 13. On August 15 General Manager Hibbard reported that 19 west bound trains with approximately 1,700 passengers were being held up. Of these passengers 297 were at Seligman, Ariz.; 188 at Williams, Ariz.; 236 at Ash Fork, Ariz., and about 1,000 at Albuquerque and Belem, N. M.

Santa Fe Issues Ultimatum to Brotherhood Leaders

On August 15, A. G. Wells, vice-president of the Santa Fe, in a telegram addressed to the leaders of the train service brotherhoods, warned them that if they could not get their men back to work the company might be forced to accept "the only alternative left it in its duty to the public and engage men to fill the places of those on strike."

After noting the threatened spread of the "sympathetic and

illegal" strike of the brotherhood members in northern California, the message says:

"At 7 o'clock last night our superintendent at Winslow, Ariz., was handed the following:

"Effective 8 p. m., Aug. 13, owing to the general unsafe conditions of equipment and improper brake inspections of trains, of which we have sufficient individual protests on file and copies sent to our general chairmen, we deem it necessary to withdraw our services from the A., T. & S. F. Railway at this point until equipment is placed in a safe condition and competent men placed on inspection of trains satisfactory to the following general grievance committee of the coast lines, B. of L. F. & E., B. of L. E., O. R. C., and B. of R. T. and all men returned to work with full seniority rights."

"It will be noted that in this ultimatum no reference is made to the objection to guards, which was the main cause of complaint in the Needles environment, but a new element in introduced, that of competent men to be employed for inspection of trains, which has no more foundation in fact than the claim of unsafe engines.

"Your attention is called to the language of the ultimatum delivered at Winslow and above quoted. It stipulates that certain conditions must be met satisfactorily to the general grievance committee of the Big Four. This warrants the deduction that the committee at Winslow is acting under the direction of the general chairmen and certainly constitutes an unwarranted and sympathetic strike approved by the four organizations in flagrant violation of your constituent obligations under the existing agreements between this company and its train and engine service employees.

"I ask you each to declare whether you will immediately order, and require compliance with your order, that they shall return to work and perform their accustomed duties, advising them that failure to comply will result in your co-operating with the company to supply men to take the places which they have vacated, or shall the company proceed at once to accept only alternative left it in its duty to the public and engage services of men to fill the places of those on strike? I desire an explicit answer on the point from you today."

Reports from the west on the same day indicated that steps would be taken to operate passenger trains through the districts affected by the train service strike, and also that practically all of the trains marooned at desert points were moving, in many cases through the efforts of company officers.

The result of Mr. Wells' telegram was the forwarding of telegrams to the leaders of the local organizations involved in the walkouts on the Santa Fe advising them that they should perform their duties as usual and that their action in striking was illegal.

Strike Fever Spreads

The strike fever spread very rapidly in the western territory after the first outbreak on the Santa Fe. Within three days walkouts were either called or threatened on the Union Pacific at Caliente and Las Vegas, Nev.; on the Western Pacific at Stockton, Oakland and Oroville, Cal.; on the Santa Fe at Prescott and Winslow, Ariz.; and Albuquerque and Raton, New Mex.; on the Missouri Pacific at Pueblo, Colo.; the Illinois Central at Memphis, Tenn.; the Wabash at Moberly, Mo.; the Louisville & Nashville at Evansville, Ind., Madisonville and Atkinson Junction, Ky., and on the Southern Pacific, Oregon Short Line, Union Pacific and Denver & Rio Grande at Ogden, Utah. At some of these points the strikes were of but a few days' duration. The engineers and firemen at Moberly, Mo., for instance returned to work on August 11 and the train service men on strike at San Bernardino returned on August 14.

The effect of these strikes was in practically all cases to tie up the divisions on which they occurred temporarily. The latest reports indicate that the most serious effect of these moves has been the discomfort and inconvenience caused to the passengers who were marooned in desert towns for several days.

The action of the national leaders of the four train service brotherhoods in regard to these sporadic strikes has again disclosed the difference of opinions which played such a large part in ending the threatened nation-wide strike of train service employees last October. Whereas the heads of

the engineers' and firemen's organizations have openly approved the action of various local organizations in refusing to work, W. G. Lee, head of the Trainmen's Brotherhood has endeavored to hold his men in line, directing them to abide by their schedules with the individual railroads, instructing the local officers of the organization to do everything possible to avert a strike, and demanding conformity with the union's laws for calling strikes.

The wave of violence which came during the past week was not confined to any one point or locality but seemed to be widespread. Every day new reports of slugging, killing, rioting and bombing at many points were circulated. At San Bernardino, Cal., for instance, 23 bombs were exploded at intervals on the morning of August 11, within 200 ft. of the Atchison, Topeka & Santa Fe roundhouse at that point. No one was injured in these explosions and the property damage was comparatively light. Similarly five bombs were exploded on August 12 in the yards of the Southern Pacific at Roseville, Cal., the bombing being followed by an exchange of shots between company guards and men supposed to be strikers or strike sympathizers. On August 13 the St. Louis-San Francisco bridge over the Sac river near Ash Grove, Mo., was dynamited and at Wichita Falls, Tex., the car shops of the Wichita Falls & Northwestern were destroyed by a fire of unknown origin, destroying three locomotives as well as a number of cars. Many other instances of violence on the part of strikers or their sympathizers similar to those described here were reported during the past week. In fact, these reports have become so numerous that it is not possible to verify all of them in time for this issue of the *Railway Age*.

By August 15, traffic had been partially resumed on the transcontinental roads affected by the sporadic strikes of the train service employees and the wave of violence noted above had greatly declined.

Continued Improvement in East

Following a meeting of the Eastern Presidents' Conference on Tuesday, Chairman L. F. Loree, president of the Delaware & Hudson, issued a statement in which he said that:

"As against 103,528 shopmen working on the Eastern railways on August 4, there were working on August 11, 111,324, an increase during the week of 7,796 men. This raises the percentage of the force working to the normal force from 64.7 per cent on August 4 to 69 per cent on August 11.

"When due allowance is made for the men who remained loyal or have since returned to work, it is safe to say that in the Eastern region there are now more men on the companies' payrolls in the six shop crafts than there are out of service on strike."

The general strike situation on the roads in the east during the past week has continued the gradual improvement which has now been going on for the past few weeks. Developments have been very much subordinated to the greater interest in the more general developments at Washington and to the interest surrounding the abandonment of trains by the train service employees in the west. In the east some cases of violence continue to be reported, the outstanding instance of which was an attempt made by strike sympathizers, it is believed, to dynamite a train on the West Shore. Service continues normal except for minor delays in freight service, the causes of which are explained as being possibly due as much to difficulties of fuel supply, to congestion naturally resulting from the heavy traffic movement as to the strike itself.

In the Pocahontas district, the Chesapeake & Ohio, the Norfolk & Western and the Virginian report a rapid improvement from the serious condition they were in two or three weeks ago. In this improvement they have been as-

sisted by the shopmen sent to them by roads' recruiting men in the northeastern industrial centers. The improvement is indicated by increased loadings of coal. The volume of non-union coal moving, however, has not yet approached the high figures reached in June before the beginning of the shopmen's strike. In the south, the Southern Railway, which at first did not attempt to fill the places of its shop strikers, has now announced that it will employ other men, a statement to that effect having been issued on Monday.

Railways Deny Equipment Deterioration

The condition of cars and locomotives continues to be a leading subject of discussion between the railways and the publicity men of the shop crafts unions. The New York Central on Friday drew attention to a statement of the New York Public Service Commission at Albany, in which Charles H. Vanneman, chief engineer of the commission, was quoted as follows:

"Since the first of July we have had our inspectors at the Union Station (Albany) and they have been making daily verbal reports concerning the condition of locomotives. These reports are growing much better daily. Where our inspectors have found defects they have reported them to the officials of the railroad who in turn have directed the force of mechanics kept on duty at the Union Station to make the repairs. Where this has not been possible the engine has been taken out of service and another substituted.

"Several defects have been found which would not otherwise have been noted. These defects have been remedied wherever possible where this could be accomplished without serious delay to the trains. If the repairs could be made without sending the locomotive to the shops, this course has been followed."

The Pennsylvania on Tuesday announced that in the preceding week it had made more progress in the repair of freight cars than in any week since the shopmen's strike. "The car repair situation on the Pennsylvania System is practically normal," the statement said. Continuing, it said:

A report just compiled by the motive power department of the Pennsylvania System shows that during the last week 215 more cars were repaired than were sent to the shops for repairs in that period. The number of cars shopped during the week was 16,302. The number of cars repaired and turned out for service was 16,517.

In comparison with the previous week, 1,170 more cars were taken in hand for repairs, and the number of cars actually repaired was 1,418 more than the number repaired the week before.

The explanation for this improvement is in the fact that more than 48,200 shopmen out of a normal force of 60,157 are now actually at work on the Pennsylvania System.

Southern Decides to Fill Strikers' Places

Fairfax Harrison, president of the Southern Railway, which has heretofore refrained from attempting to replace its striking shop employees and which offered to make a settlement on the basis of the President's original proposal to take back the men with seniority unimpaired, issued a statement on Monday announcing the intention of the company to employ others. He said that "if it means war to run the Southern Railway, let us have it now." Mr. Harrison's statement follows:

"Every effort has been made so to operate our property that our men could honorably return to work. Every effort has been made to settle with our men; we have gone to the extent of offering the terms that they had previously agreed to accept. We have thus held out every reasonable inducement, without result.

"We must now turn to employing others, for the road must be run; we must give those we employ protection, for it may be that those we have to this time protected by keeping their jobs open, may now turn against us, even to an attempt to prevent others from working.

"Call is now being made upon every employee, upon every patron of this company, and upon every citizen along its lines, to rally to the support of the road that has served you

and protect your own interests in the maintenance of transportation. With your help we can run the road, and we pledge all the resources of the company to that end. If it means war to run the Southern Railway, then let us have it now—not later."

Bomb Outrage Near New York

On Sunday night, August 13, about 10 o'clock, a south-bound suburban passenger train of the West Shore division of the New York Central was damaged by an explosion at a point five miles north of Weehawken, N. J., and 20 or more passengers were injured, five of them being sent to a hospital. The train was moving at full speed and it was believed that three or more dynamite bombs were thrown against the sides of the coaches. The injuries were mostly cuts made by broken glass. A bridge which carries the New York Central over the northern division of the Erie was slightly damaged. The scene of the explosion is near a car repair shop of the New York Central.

Canadian Wage Reduction Suspended

The Canadian railways, following conferences early in the month ordered a general reduction in the wages of their shopmen to go into effect on August 15, although the employees, said to number 37,000, had threatened to strike if the reduction should be ordered before the Board of Conciliation had approved the new rates. Premier King had notified the roads that he indorsed the opinions of the Departments of Labor and Justice that the reductions cannot be enforced until the Conciliation Board acts; and on the evening of the 15th it was announced that the presidents of the Canadian National, the Grand Trunk and the Canadian Pacific had telegraphed Premier King that the cut would be rescinded and the men would be paid at their old rate. The view of the government is that a reduction of pay is a "condition affecting employment" which, under the Act of 1907 regulating industrial disputes, cannot be changed except on 30 days' notice and opportunity for governmental investigation.

TWELVE MILLION PERSONS used the Southern Pacific ferries across San Francisco Bay in six months ending June 30 last. On one day during the Shriners' convention 120,000 passengers were carried.



International Newsreel Photo

A Group of Brotherhood Officials Leaving the White House on August 12

The Status of Railroad Electrification*

The Railroad Man's Position Is Presented to the Electrical Engineers by One of Them

By Calvert Townley

Westinghouse Electric & Manufacturing Company

WHEN WE electrical engineers have discussed railroad transportation we have always done it from the standpoint of proving how desirable it is for the steam railroads to electrify, and when we have invited our steam railroad friends to participate in our discussions, they usually refrain from courtesy or some other reason from telling us absolutely and entirely what they think of us. It has therefore occurred to me that it might be worth while for an electrical man to say a few words about the railroad man's natural objections to electrification and to give some of the reasons why he is not always willing to fall upon our necks and welcome us as saviors.

Having enjoyed for many years an association with the big railroad system which serves this community, I have had an opportunity to learn something of the railroad man's point of view from the inside.

Electrification Expensive

In the first place, electrification is very expensive. It involves not a small but a tremendous addition to the investment per mile, with the consequent difficulties not only of earning the additional interest charges thereby involved, but also those of financing—of raising the money. These are by no means minor objections. The day has gone by when the management of a railroad property can have a free hand in issuing securities. Through their various governmental agencies the public has established a strict supervision over railroad earnings, is reluctant to permit the capitalization of values created by earning power and is prone to regard railroad securities as having so stable a value that their yield must be limited to a minimum annual interest with little opportunity for the stockholders of the road to obtain large profits from courage and initiative; that is to say, stated in another way if a railroad by far-sighted and wise expenditures should be able to earn a rate of return such as is freely permitted and often applauded in private industry, such as for example as 15 per cent to 20 per cent per annum, it is most probable that this additional yield would be shortly taken away from it by a forced reduction in its rates. I am one of those who believe this public policy is founded on a misconception; is in fact practically an economic crime, because I think it is obvious that if a dollar invested in a railroad is not permitted as good a chance as one invested in a shoe factory or a flour mill, that dollar will tend to go into the factory or mill and not into the railroad, with the consequent hampering of that continued improvement and expansion of our transportation facilities so necessary to progress. I cannot escape what seems to me to be the obvious logic that if it be equitable for the public to prescribe a maximum rate of return on a railroad or any other investment, it should, as a necessary corollary, guarantee the same investment not less than a minimum return. However, our public policy has been pretty firmly established by now so that what I think about it is of only academic interest.

The art of estimating in advance the cost of new construction, no matter if practiced by the most competent engineers, has never reached or even approached perfection, therefore, where such large expenditures as those necessitated

by electrification are contemplated it is always possible due to this fact and due to unforeseen contingent expenses that the estimated costs will be considerably exceeded. A combination of this contingency with the knowledge that should greatly increased profits result, the road may be deprived of them through the medium of rate reductions, may well cause the responsible executives to go slowly.

Departmentalization

Long experience has demonstrated the necessity and established the practice of well-defined and rather rigidly restricted departmentalization of railroad construction and operation; that is to say, the construction, operation, traffic and financing are each in charge of a responsible official who concentrates his attention each on his own department and who is most punctilious in keeping out of every other sphere. This practice results of course in a high degree of efficiency in the conduct of each department and is obviously dictated by a wise policy. However, it has the disadvantage of dividing the responsibility for general results and makes for a tendency to put departmental success ahead of general prosperity.

Substitutes an Unlimited Motive Power

Electrification upsets some of the fundamentals around which steam railroad practice has been built up, namely, it practically substitutes an unlimited for a limited motive power. This fact is well known to us all but it is so fundamental and so far-reaching in effect that it will bear restating and emphasizing many times. I refer of course to the fact that a steam locomotive which carries along its own boiler and is therefore in fact its own power house, is limited in the tractive effort it can exert by the steam which can be generated by that boiler, whereas the electric locomotive being only a translating device can call upon the entire capacity of all the power houses connected to the system. On account, therefore, of the large excess in such power house capacity over any possible demands of an individual train, on account also of the characteristic of electric motors to continue to exert more and more power, even to the point of self-destruction, and further on account of the possibility of operating two or more electric locomotives together in absolute synchronism with one crew and the consequent possibility of getting any desired weight on the drivers, there is practically no limit to the amount of tractive effort that may be utilized for any one train.

The consequences resulting from these facts are rather startling, for example, the long-established and accepted practice of calling two per cent the maximum grade over which a desired schedule may be made goes into the discard and much steeper grades become entirely practicable, likewise the tonnage and speed of freight trains previously limited by the power of a steam locomotive to pull is no longer so limited. Freight trains may be as long as the structural strength of the freight cars will permit or as may be handled in the yards and on the sidings. Schedule speeds may be increased to any point considered safe for the track and equipment, being no longer limited by the steaming power of the locomotive. Instead of accelerating from a standstill at the rate of one-quarter of a mile per hour per second as

*Address delivered before the Connecticut Section of the American Institute of Electrical Engineers, May 23, 1922.

is common steam locomotive practice, passenger trains may be accelerated at the rate of from one mile to one and one-half miles per hour per second.

We have always considered the above fundamental change as offering a wonderful opportunity for the improvement of traffic and they do offer such improvement but to get all the possible benefits requires the co-operative effort of the construction, operating and the traffic departments. It disturbs the existing order to a very considerable extent and redistributes the proportionate burden of expense among the different departments concerned so that any departmental head may be faced with the necessity of taking on some additional burden in his own department without any compensating advantage, i.e., the advantage goes to another department. In view of the well-established relationship between departments above referred to, railroad executives cannot be blamed if they regard such innovations with skepticism and retain a considerable reluctance toward their adoption.

Labor

The relation between railroad management and railroad labor is a source of continued and great anxiety. Owing to the meddling (and I use the word "meddling" deliberately and advisedly) of federal and other outside agencies in what may be well-meaning but is certainly a misguided effort, there has grown up an inflexibility in both the duties and the pay of railroad labor unparalleled in any other industry. Changes in operating methods are very difficult. Now electrification immediately requires a lot of changes. Not only have the engine drivers all to be educated to a new art but the duties of the fireman are revolutionized. In fact, except as a source of insurance against the death or disability of the engineer while driving his engine, the fireman is not needed at all. A new type of man, the electrical lineman and the electrical shop man is required and where a railroad operates its own power houses the power house crews are introduced. The transmission lines overlap two or more divisions of the road and confuse the duties of the division superintendents. The signal system has to be revamped. These and other features all tend to upset the existing order of relationship between the management and its labor, and the official whose duty it is to regulate these relations may be forgiven if he contemplates with extreme alarm the task presented to him.

Many if not all of the bunkers which I have mentioned are present on every railroad and you will note are not removed, even if it is known that railroad electrification would

be advantageous. On top of this come all the questions of the actual virtue of electrification itself. It is perfectly true and I think now very generally admitted that all electrifications heretofore made have been successful and that no road which has electrified would now consent to return to previous conditions.

However, not more than about one per cent of the entire steam railroad mileage of the United States has been electrified as yet and the average railroad executive may be excused if he looks upon the existing examples as special cases and therefore as proving nothing with respect to his own particular problem. For example, the New Haven and the New York Central had to electrify out of New York City because of a law passed by the State of New York. The Pennsylvania had to electrify out of New York City in order to operate its subway river tunnels. The Norfolk & Western had a peculiar restricted neck to its bottle in the Elkhorn grades which would justify almost any expense to remove. In a like manner some special reason can be found for almost every large electrification project. However, it is perfectly safe to say that the attitude of mind of the railroad man has materially changed so that the question always first asked some years ago, "Can it be done?" has now been replaced by the entirely different question, "Will it pay?"

As many of you know, I have been and still am a consistent and an enthusiastic advocate of steam road electrification. In reciting the different objections of which I have spoken I do not intend in any way to indicate a change of opinion or a weakening of confidence but rather because I think it helpful to us all when we can look at any situation from the other man's point of view and because I firmly believe we can do the cause of electrification no greater harm than to ignore plain facts and out of well meaning but mistaken zeal advocate electrification where we are not reasonably sure that it will be economically right.

Freight Car Loading

WASHINGTON, D. C.

FREIGHT CAR LOADING during the week ended August 5, the fifth week of the shop strike, showed another drop of 8,382 cars, as compared with the week before, to 851,351. This represented a reduction of about 26,000 cars as compared with the loading before the strike, but was an increase as compared with the corresponding week of 1921 of 65,173 cars and a reduction as compared with 1920 of

REVENUE FREIGHT LOADED

SUMMARY—ALL DISTRICTS, COMPARISON OF TOTALS THIS YEAR, LAST YEAR, TWO YEARS AGO, WEEK ENDED SATURDAY, AUGUST 5

Districts	Year	Grain and grain products	Live stock	Coal	Coke	Forest products	Ore	Mdse. L.C.L.	Miscellaneous	Total revenue freight loaded		
										This year 1922	Corresponding year 1921	Corresponding year 1920
Eastern	1922	11,506	2,663	8,728	1,423	5,284	5,834	65,518	95,562	196,523	.....	.....
	1921	9,574	2,569	39,190	905	4,439	2,255	55,259	74,111	.....	188,302	230,654
Alleghany	1922	3,993	2,561	18,452	4,128	3,005	12,772	50,277	77,685	172,873	.....	.....
	1921	3,389	2,116	42,540	2,224	2,097	7,068	43,859	49,589	.....	153,282	192,994
Poconantas	1922	211	141	19,555	243	792	33	3,879	2,944	27,798	.....	.....
	1921	220	155	16,533	73	1,055	9	4,524	3,946	.....	26,515	37,334
Southern	1922	4,474	2,354	17,015	814	17,803	1,063	34,379	35,736	113,638	.....	.....
	1921	4,182	1,778	19,000	250	13,645	214	35,804	33,674	.....	108,547	127,446
Northwestern	1922	12,325	6,609	6,546	1,278	14,733	44,164	28,424	41,146	155,225	.....	.....
	1921	12,967	6,940	7,805	436	10,320	21,243	27,740	33,030	.....	120,491	158,995
Central Western	1922	19,268	9,461	5,719	373	7,120	1,966	32,474	49,095	125,476	.....	.....
	1921	21,552	9,058	16,709	232	5,852	736	30,678	40,589	.....	125,406	125,014
Southwestern	1922	6,735	2,713	3,231	183	7,161	336	14,336	25,073	59,818	.....	.....
	1921	7,558	2,896	4,318	228	6,017	759	15,600	26,259	.....	63,635	63,293
Total western dist.....	1922	38,328	18,783	15,496	1,834	29,014	46,516	75,234	115,314	340,519	.....	.....
	1921	42,077	18,894	28,832	896	22,199	22,738	74,018	99,878	.....	309,532	347,302
Total, all roads.....	1922	58,512	26,507	79,246	8,442	55,898	66,218	229,287	327,241	851,351	.....	.....
	1921	59,442	25,912	146,095	4,348	43,435	32,284	213,464	261,198	.....	786,178	.....
	1920	37,144	26,204	198,729	13,370	61,170	76,880	198,071	324,162	.....	774,884	942,851
Increase compared	1921	.....	595	.....	4,094	12,463	33,934	15,823	66,043	65,173	.....	.....
Decrease compared	1921	930	.....	66,842	.....	.....	.....	.....	.....	.....	.....	.....
Increase compared	1920	21,368	303	.....	.....	.....	.....	31,216	3,079	.....	.....	.....
Decrease compared	1920	.....	.....	119,483	4,928	5,272	10,662	.....	.....	.....	.....	.....
August 5	1922	58,512	26,507	79,246	8,442	55,898	66,218	229,287	327,241	851,351	786,178	935,730
July 29	1922	59,170	27,104	76,374	9,112	58,197	64,147	234,567	331,062	859,733	795,432	936,366
July 22	1922	57,566	27,455	76,060	9,949	58,512	64,417	239,510	327,555	861,124	788,034	928,418
July 15	1922	48,911	30,216	77,334	9,698	58,121	69,162	241,180	326,285	860,907	774,884	942,851
July 8	1922	35,267	21,847	68,996	9,665	44,736	55,729	210,140	271,939	718,319	646,535	796,191

Compiled by Car Service Division, American Railway Association.

84,379. Coal loading increased as compared with the week before to 79,246 cars, but with the exception of ore there was a decrease in all other classes of commodities. As compared with the corresponding week of last year there were increases in all classes of commodities except grain and grain products and coal, and in all districts except the Southwestern. Although there has been difficulty in handling all the coal offered for transportation in the Pocahontas district it is noteworthy that the loading both of coal and of other commodities was in excess of that of last year.

Despite the coal strike, reports filed by the railroads with the Car Service Division show an increase in July, compared with the same month last year, of 10.6 per cent in the number of cars loaded with all commodities. The total for July was 4,176,979 cars, compared with 3,774,964 cars during that month one year ago, or an increase of 402,015 cars. Compared with June, 1922, freight loading last month showed an increase of .05 per cent, the total for June being 4,156,396, but compared with July, 1920, a decrease of 7.1 per cent was reported.

Coal loading for the month of July totaled 393,512 cars, a decrease of 46.2 per cent compared with July one year ago, when the total was 731,615 cars, and a decrease of 59.5 per cent compared with July, 1920, when 971,968 cars were loaded. Compared with June, 1922, the total for July was a decrease of 14.8 per cent.

Loading of all commodities, other than coal, totaled 3,783,467 cars in July, an increase of 24.3 per cent over July, 1921, and an increase of 7.4 per cent over July, 1920. An increase of 2.4 per cent was also reported compared with June, 1922, when the total was 3,694,480 cars.

During the week ended July 29, loading of all commodities other than coal amounted to 98.9 per cent of the total for the week of October 15, 1920, when the largest number of cars were loaded with freight in the history of the railroads. In three out of the seven districts, however, the previous record was excelled. In the Eastern district, freight loading amounted to 102.1 per cent of the total for that district for the week of October 15, 1920, while in the Allegheny district it was 106.8 per cent. In the Central Western district loadings were 101.7 per cent. The Southern district reported total loading of 94 per cent of that for the week of October 15, two years ago, and the North Western district, 94.3 per cent. In the Southwestern district it was 93.8 per cent. Owing to a falling off in coal traffic, loading in the Pocahontas region was only 62.8 per cent of that for the record week two years ago.

The total car loading from January 1 to July 29 this year, 23,548,742 cars, was 8.5 per cent greater than the total for the corresponding period of last year, a year of depression, but was 6.7 per cent less than the total for 1920, the boom year. The loading for that period of 1920 was, however, approximately the same as for 1918. For 1921 the loading to July 29 was 21,684,806 and for 1920 it was 25,075,940.

The railroads during the week of July 29, the fourth week of the shop strike, placed a slightly smaller percentage of the cars required for coal loading than they did the week before, 71 per cent as against 72, but the requirements were larger and they actually loaded 4,166 cars, or 6.1 per cent more than they loaded in the week of July 22. While the railroads of the Allegheny, Northwestern and Central Western districts furnished more than 100 per cent of the cars required for bituminous loading, the roads of the Pocahontas district furnished only 40 per cent, the Southern district 47 per cent, the Eastern district 97 per cent, and the Southwestern district 99 per cent. The cars required for coal loading, including 508 for anthracite loading, were 142,811. The cars placed were 101,023, and the cars loaded were 71,931.

The Chesapeake & Ohio, in the week ended July 29, placed only 30 per cent of the coal cars required, the Nor-

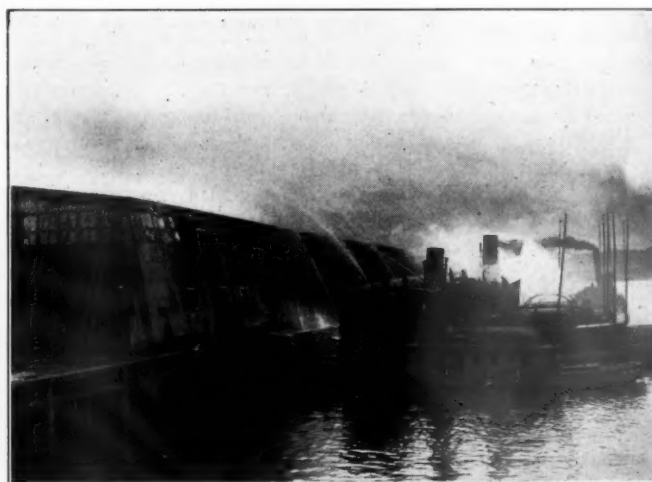
folk & Western 55 per cent, the Virginian 37 per cent, and the Louisville & Nashville only 33 per cent. The actual loading on the Norfolk & Western, however, increased 1,959 cars over the preceding week.

These figures are taken from weekly bulletins published by the Car Service Division of the American Railway Association. Later figures published by the Geological Survey, based on reports furnished by the A. R. A., show a steady increase in coal production and loading for the three weeks ending August 12. For that week it is estimated that the production was about 4,800,000 tons. The drop in coal production began during the last week of June, before the shop strike, and was due largely to congestion on the roads serving the non-union coal mines. There was then a decline for four weeks to July 22, but the trend since then has been steadily upward.

The railroads also placed 86 per cent of the total number of open-top cars required, 278,609, against requirements of 323,352. They loaded 244,518, a decrease, in comparison with the week before, when they furnished 282,679, or 89 per cent of the requirements. The loadings for the previous week totalled 246,833. For limestone the roads furnished 95 per cent of the requirements, ore 100 per cent, iron and steel 98 per cent, sand, stone and gravel, 95 per cent, coke 100 per cent, and miscellaneous 95 per cent. The low percentage was attributable chiefly to the low performance of the railroads in the Pocahontas and Southern districts, 43 and 58 per cent, respectively.

Car shortages began assuming appreciable figures during the period July 23-31. The shortages in that week amounted to 24,973, as compared with 15,366 during the preceding week. The car surplus, during the same period, amounted to 174,927, a decrease of 28,395. The shortages included 16,550 box cars, and 6,633 coal cars. The surplus included 21,367 box cars and 131,267 coal cars. The principal shortage was in the Southern district, 11,426. The principal surplus was in the Eastern and Allegheny districts, 63,960 and 59,407.

Grain and grain products loading for the week of July 29 was 59,170 cars, the highest since the week of September 3, 1921, and the cumulative loading this year, to July 29, was in excess of any of the preceding years. While similar records were not maintained before 1918, according to the weekly bulletin issued by the Car Service Division of the American Railway Association, it is safe to say that the loading this year to date was the largest ever made.



International Newsreel Photo

Fighting the Fire in the New York Central Yards at the North River and 63rd Street, New York, on August 12.

How Should Grain Door Reclamation Be Handled?*

Railway Superintendents' Association Advocates Private Bureau Where Business Justifies

IT IS NOT PRACTICABLE to maintain a uniform method of gathering grain doors and of storing, re-using and shipping them back to owning lines because of differing conditions. For instance, in some cities the elevators and mills are close together and handle so much grain that the grain doors which are not re-used accumulate in sufficient quantities to justify their being shipped back to the owning roads in cars, whereas at other places the elevators and mills are scattered and a carload of grain doors will not accumulate in a year. At such places, if the grain doors are not reclaimed promptly they are chopped up or stolen and it may, therefore, pay, where these accumulations are small and scattered, to have an automobile truck collect the doors once a week or oftener.

The grain door problem is, therefore, one for local bureaus or committees to solve in view of the conditions met in each locality. In doing this, however, there are a number of considerations which any plan, to be most effective, must take into account, a statement which also applies with respect to the cooping of cars. One of these considerations is that of establishing the rules under which the reclamation and cooping of and payment for grain doors is to be performed. As an example of what should be covered by such rules and how they should be drawn up, the following rules of one city are submitted.

Rules Governing Reclamation and Cooping

1.—The party of the second part shall reclaim all grain door materials belonging to the railway company from all cars unloaded at the various industries within the switching limits, and shall return the same to the railway company or shall use the same in cooping cars for said railway company. When such material shall be returned in a serviceable condition the railway company shall pay to the party of the second part 8½ cents for grain doors 26 in. in height or less; 15¼ cents for grain doors over 26 in. in height, and ½ cent per foot board measure for loose boards.

2.—The party of the second part further agrees to coope all cars for the railway company, for loading bulk grain, sacked grain, seed and other similar commodities, at all industries in the switching limits; and, furnish all labor, tools, nails and burlap, and such other material as may be necessary to make said cars grain-tight, except lumber material, using burlap at the sides, ends, over king-bolts and at door posts. The railway company shall furnish the necessary lumber material for cooping sides, ends and other parts of the car. The party of the second part shall receive \$1 per car for cars loaded with bulk grain and other bulk commodities, and \$0.40 per car for sacked grain seed, and other such commodities.

3.—The maximum price per car to be paid by the railway company to the party of the second part for cooping shall be \$1.15 per car, and for both reclaiming of grain door material and cooping shall not exceed \$2.05 per car. The party of the second part shall furnish all labor, tools, nails and such other equipment as may be necessary for the performance of the work contemplated by this agreement, except the grain door material as hereinbefore provided.

4.—The party of the second part shall present to the railway company on or about the first day of each month itemized bills showing the service, and the compensation therefor, during the preceding month. The railway company shall pay said bills on or before 20 days after the presentation of said bills.

5.—The railway company shall arrange with other railroad companies within the switching limits for the switching movement on cars containing door material returned under the provisions of this agreement, at the cost of the party of the second part. The party of the second part shall keep a correct record of all grain door material reclaimed, delivered to, or used for the railway company, under the terms of this agreement.

6.—The railway company shall assist the party of the second part towards reclaiming grain doors from and at industries located on the lines of the railway company within the switching limits, and the railway company shall also permit the party of the second part to reclaim grain doors for other railroads at industries and at elevators on the lines of the railway company within the switching limits.

7.—As a special inducement for the execution of this agreement the party of the second part has and by these presents does agree to hold the railway company harmless from and indemnify it against all loss, cost, damage or expense, resulting from accident, injury or death to either the party of the second part, or to any person in his employ, while engaged in the performance of the work herein specified, or while upon the premises owned or controlled by the railway company for the purpose of performing the conditions of this agreement.

8.—Either party may terminate this agreement by giving 30 days' notice in writing to the other party of its intention to so terminate the agreement; otherwise, said agreement shall remain in full force and effect.

ADDENDA

1.—The grain door agent, in cooping outbound cars with doors and lumber received from cars on an inbound carrier, is only authorized to use such material in emergency cases and with the consent of the road owning it; the

outbound carrier to pay the contractor \$1 per car where the car is fully and newly grain-doored.

2.—All grain doors and lumber furnished by the inbound carrier, including intact grain doors, will be charged against the outbound carrier at the rate of \$0.46 per foot in height; no maximum allowance.

3.—Where the grain door agent is required to place doors in automobile and furniture cars, that class of cars having doors 7 ft. or over in width, the charge for cooping is \$1.37.

4.—The cooping of cars for grain and other loading to points within the switching limits must be paid for by the shipper at the rate of \$2.04 per car, the Grain Door Reclamation and Cooping Bureau to collect this amount in each case from the shipper and pay to the railroad owning the grain doors \$0.86 per car, retaining for the work of reclaiming, cleaning, repairing and cooping \$1.18 per car.

5.—Reclaiming grain doors at outlying points, where automobile truck is used, \$0.22 per door.

These rules have been found to be thoroughly practicable and fit the conditions. There is no doubt that similar local rules should apply in all large cities.

It Is Usually Better to Do Repairing at the Elevator

In cities where there is a great deal of grain-dooring of cars, the point has been made that it is cheaper to have a grain-dooring yard and to switch the cars rather than have a shifting force to go from elevator to elevator and do the work. While this is the practice at Buffalo, in other cities it is much more profitable and satisfactory to use intact grain doors, grain doors of neighboring roads, the local bureau to have a force at each elevator, or, where there is not much business, a traveling force, to take care of the work. One trouble which always develops when cars are not coopered at the elevator is that they are often found, on arrival at the mill or elevator, to be improperly coopered, or the doors knocked out and stolen, necessitating the assignment of another car.

The sweeping of sills outside the grain door after the car is loaded is important to avoid claims. When the sill is not swept and a car goes through to its destination it is often reported by inspectors as leaking and the grain which is found on the sill is mentioned in their reports as evidence that the car was leaking before it started on its trip. This militates against the interests of the handling roads. While it is apparently a small matter, it has a large effect in the avoidance of erroneous evidence on which claims are filed.

It Pays to Watch the Cooping

It is important that a bureau, a committee of railroad officers or railroad employees check the elevators on their loading of outbound cars to see that the elevators apply and apply properly, the top boarding after they have completed the loading, otherwise a loss of grain will occur enroute, which may result in a claim against the railroad. Another feature deserving attention is the damage at elevators by misuse of equipment. With a bureau or a committee watching this, reports of damage can be made and the elevators forced to pay for the damage which they do to the interior of the car or which is done by cornering the cars when the elevator does its switching with a capstan.

Wherever there are terminals of several roads, and as many as five superintendents, there should be a superintendents' association, so that a committee of such an association can form a bureau of its own or supervise an outside bureau to see that the prices are properly gaged. The conditions are sufficiently similar in different cities so that the cost of doors and cooping can be moved up and down in accordance with analyses made from time to time by a central bureau.

The trouble about a bureau operated by the railroads is that it is not as closely supervised as a private bureau. This arises from the fact that the private bureau depends for its

*From a report of the Executive Committee of the American Association of Railroad Superintendents.

revenue entirely on the activity of the bureau officials and its employees, while in the case of the railroads the supervision is usually left to some individual railroad officer. The latter has other work to do and, being overcrowded with it, the work of the bureau is allowed to drift along without the close supervision necessary for efficient and economical operation. It is better for adjacent cities to have a bureau representative of the several roads take charge of the work so that the overhead expense which is included in the cost per car will be as small as possible. The larger the organization that can be built up, the cheaper grain doors can be reclaimed for the railroads. Where the roads have been reclaiming lumber and grain doors in a loose manner the establishment of a bureau will result in 90 per cent more lumber and doors being reclaimed than was done before its inauguration and where bureau men are established around

Gasoline Motor Car for the Burlington

THE CHICAGO, Burlington & Quincy has recently received from the Edwards Railway Motor Car Company, Sanford, N. C., a gasoline motor car which has been put into service on the line between Atchison, Kan., and Rulo, Nebraska. The car is mounted on two four-wheel trucks, the body being 32 ft. 7 in. long and the distance between truck centers 20 ft. 2½ in. The power to drive the car is furnished by a Kelly-Springfield four-cylinder motor, with cylinders 4½ in. by 6½ in. developing 60 hp. at 1,600 r.p.m. The drive is transmitted by chains to the four wheels of the rear truck. The car has a 12-volt electric lighting system, self-starter and Westinghouse straight air system with two Edwards special air compressors.

In the passenger compartment the car seats 39 passengers



Latest Design of Edwards Gasoline Motor Passenger Car

an elevator to reclaim grain doors and recopper cars there is 90 per cent less theft.

The bureau employees work in the joint interest of the elevator and the railroad because their positions depend upon their giving satisfaction to both sides. Their work and this interest save both sides in divers ways. The grain door reclamation bureau makes all repairs. If lining is torn out, grain door material is used for repairing. If the lining is torn loose it is nailed back into place. Also if outside sheeting is found loose it is nailed tightly to the sills and if storm doors have been torn off they are replaced. Under this plan cars are repaired which would otherwise go to the repair track, thus saving track labor and avoiding delays and the movement of the car back and forth through the yards.

Another advantage of the bureau organization lies in the check obtained upon the grain loaded into the cars. Elevators ordinarily weigh grain in hopper scales. If grain is lost while being moved from the scale to the car the bureau forces thus serve a valuable purpose in having a record taken of the car to prevent claims against the railroad. While the bureau employees do not handle any of the grain that falls out of the car on the ground, when a car is loaded at a mill or elevator, they do make a memorandum of the car number, initial and the elevator, so that in case a claim is presented the bureau is in a position to protect the railroad. In some cases where inspection shows cars unfit for grain loading and the elevator is notified, but where the elevators disregard the notice, the bureau organization renders a valuable service to the railroads also by keeping a record of the car and its movement so that the railroad will not participate in claim.

and there are folding seats in the baggage compartment for six additional passengers, making a total seating capacity of 45 persons. A toilet is placed in the forward end of the passenger compartment. The driving controls and driver's seat are on the right-hand side of the motor. The total weight of the car empty is 19,000 lb. On a trial run under full load the car developed a speed of 45 miles an hour. It is stated that the gasoline consumption was 10 miles per gallon.



International Newsreel Photo

Train Wreck at Annandale, Minn.

General News Department

The Signal Section of the American Railway Association will hold its regular meeting on Tuesday and Wednesday, November 21 and 22 at Hotel McAlpin, New York City.

A fire on August 12 at the New York Central freight terminal at 63rd street, New York City, the principal freight yard of that road in the city, destroyed Pier D and 80 loaded freight cars; estimated loss \$1,000,000. The fire is said to have been discovered first in a carload of grease.

Impact Loads on Track Bolts

Through several typographical errors the formulas on page 278 in the article on Determining the Impact Loads on Track Bolts in the issue of August 12 were given incorrectly. They should have read as follows:

$$H = \frac{P}{2\pi r \left(r - \sqrt{r^2 - \frac{D^2}{4}} \right)}$$

$$P_1 = 2\pi r H \left(r - \sqrt{r^2 - \frac{D_1^2}{4}} \right)$$

Ten Killed When Truck Wrecks Soo Line Train

Six passengers and four other persons were killed and a larger number injured when Minneapolis, St. Paul & Sault Ste. Marie passenger train No. 107, westbound, struck a motor truck on a highway crossing near Annandale, Minn., on August 12. The wreck was the result of the truck driver failing to heed the warnings of freight train men near by. He drove upon the track in front of the passenger train, the truck was hurled against a freight engine which was standing on a siding, and a switch-stand was knocked down so as to turn three coaches of the passenger train into the side track and against the standing freight train. The baggage car was crushed against the freight engine while several other cars were derailed. Most of the dead and injured were in the smoking car which fell over on its side. Two of the ten dead were occupants of the motor truck and two were train employees.

Dinner to S. M. Vauclain

Charles Riddell, manager of the Chicago office of the Baldwin Locomotive Works, gave a dinner in honor of Samuel M. Vauclain, president of this company, at the Chicago Club in Chicago on the evening of August 4. Mr. Vauclain was just returning from an extended tour throughout the west which he had made for the purpose of studying the general business situation. The dinner was attended by a large number of railway presidents and vice-presidents and other leading business men of Chicago.

Mr. Vauclain delivered an optimistic address consisting largely of observations he had made on his trip. He expressed the opinion that fundamental business conditions are sound and that when the large strikes in progress are out of the way the country will enter a period of great prosperity. He described the trip of the "Prosperity Special" consisting of a solid train of locomotives built by the Baldwin Works for the Southern Pacific which was run clear across the continent, and which, as Mr. Vauclain remarked, entered the shops of the Southern Pacific at Los Angeles all ready for work on the very day when the road's shop employees struck. He said he had never seen such promising crops, or encountered more optimism among people, than in the west.

In concluding his remarks he referred in a complimentary way to the work done by Samuel M. Felton as director general of military railways in providing equipment for the United States forces overseas during the war, and Mr. Felton made a few brief remarks in which he told of the energy and managerial skill

shown by Mr. Vauclain in turning out locomotives for the American forces with the greatest possible dispatch. Hale Holden, president of the Chicago, Burlington & Quincy, also spoke briefly.

Following the dinner Mr. Vauclain delivered an address to a large crowd in the Gold Room of the Congress Hotel on the general business situation and showed the moving pictures of the "Prosperity Special" on its flight from the Atlantic to the Pacific coasts.

Safety of Carbon Tetrachloride Fire Extinguishers

A few weeks ago a short circuit in the New York subways burned a considerable amount of paint, insulation and rubber on one of the cars filling part of the subway with smoke and fumes from which several persons were overcome. Shortly after the fire Mayor Hylan of New York blamed the Pyrene fire extinguisher for these casualties and the city departments recommended that they should not be used in subway cars. This led to a controversy over the dangers of carbon tetrachloride extinguishers. The reports of the Transit Commission which investigated the fire deal with this subject and absolve the extinguishers from blame for the noxious fumes.

The reports state that experts from the Bureau of Mines found there were apparently no serious cases resulting from the effects of possible toxic gases and that the symptoms were not characteristic of phosgene or carbon tetrachloride poisoning. These conclusions were sustained by the physician of the Transit Commission. The report further states that carbon tetrachloride is the standard fire extinguisher in general use, is approved by the National Board of Underwriters and is particularly adapted for fires produced by short circuits in electrical equipment because tetrachloride is a non-conductor and will extinguish ordinary electric arcs.

State Control Urged for K. C. M. & O.

Lieutenant Governor L. Davidson of Texas believes that state control of the Kansas City, Mexico & Orient is the only possible solution of the problem of saving the road from being junked. Not only should the state of Texas take this action, the Lieutenant-Governor declared, but he also urges that similar action be taken in each of the other states through which the road runs. Further, he said: "Both federal and state legislation exempting the road from the application of all transportation acts should be enacted, this exemption to continue so long as the road is in the hands of the states, or their agencies, legally created." He would thus modify the federal statutes on the condition that the agencies of the respective states should elect a managing agency from among their members. Mr. Davidson said, further:

"Six hundred thousand citizens are living in the towns and cities located on this railroad. There are 93 towns on it, 66 of which are in Texas. There are 735 miles of the railroad in the United States, 464 miles of which are in Texas, and there is a rural and urban population along the road equal in number, perhaps, to those in the cities. The Orient railroad must be conserved or else the state's custodianship of the citizens' welfare comes to a sorry accounting. Expediency would adopt the suggestion to deliver the Orient railroad to some line financially able to carry it for operation, and if that can be done, it is perhaps the best immediate disposition of the difficulty. A government-owned railroad, because of ensuing political management, is not the remedy. May the wisdom of the people save us from the Plumb plan or other similar socialistic schemes, and from government ownership of railroads."

Mass Meeting to Aid the Road. At a mass meeting held in San Angelo, Tex., on August 7, the citizens of that community appointed a committee to urge the county commissioner to reduce the tax valuation of this railroad to \$100 a mile. C. M. Reed, chairman of the Kansas public utilities commission, told the

meeting that this was one way to which the territory served by the road could aid in averting the threatened suspension of operation.

Wage Statistics for May

According to the Interstate Commerce Commission's monthly bulletin the number of employees reported by Class I railroads for May, 1922, shows an increase of 50,095, or 3.2 per cent, as compared with April. It appears largely in the maintenance-of-way group.

In the April statistics the decline in the total compensation from the preceding month was attributed to a decrease in the number of higher paid employees. Further analysis indicates that although it is true that the number of men and hours in the maintenance-of-way group increased, as against a decrease reported for the higher paid groups, the net effect of this, combined with other changes, was to leave the average earnings per hour for straight time practically the same, and the decrease in total compensation is to be attributed to the decline in the total hours worked in April, which had 30 days with 5 Sundays, as compared with March with 31 days and 4 Sundays.

Compared with April the returns for May indicate the following increases or decreases:

Executives, officials and staff assistants.....	D9
Professional, clerical and general.....	202
Maintenance of way and structures.....	40,795
Maintenance of equipment and stores.....	7,279
Transportation (other than train, engine and yard).....	1,304
Transportation (yardmasters, switch tenders and hostlers).....	D309
Transportation (train and engine service).....	833
Net increase	50,095

A comparison of the number of employees and their compensation by months for the period covered by the new classification follows:

Month	Number of employees	Total compensation
July, 1921	1,634,872	\$214,339,385
August, 1921 ¹	1,679,927	227,745,895
September, 1921 ¹	1,718,330	223,972,822
October, 1921 ¹	1,754,136	237,602,959
November, 1921 ¹	1,732,353	225,304,006
December, 1921 ¹	1,637,151	214,921,396
January, 1922 ¹	1,552,014	205,178,639
February, 1922 ¹	1,545,040	194,523,427
March, 1922 ¹	1,570,158	216,704,408
April, 1922	1,578,133	203,413,071
May, 1922	1,628,228	216,672,028

¹Excludes Detroit, Toledo & Ironton.

Illinois Central "No Exception" Month a Success

During June of this year the Illinois Central and the Yazoo & Mississippi Valley conducted a "no exception" campaign, during which time only 1,485 L. C. L. exceptions were charged to all stations on these carriers as compared with 1,933 in June, 1921, a decrease of 448, or 23.1 per cent. There were 150 carload exceptions charged to all stations during June, 1922, as compared with 374 in July, 1921, a decrease of 224 or 59.8 per cent.

The general plan of last year's campaign was followed this year. Superintendents, supervising agents, trainmasters, master mechanics, yardmasters and agents worked with the employees of all departments for the single purpose of eliminating freight claim causes. The employees were impressed daily by these supervising officers and department heads with the importance of prompt and proper handling of all freight shipments and were told that the final result desired was not only the conservation of foodstuffs and materials but the elimination of causes responsible for annual claim payments amounting to thousands of dollars. A special effort was made by platform forces to see that packages were properly marked, packed and in containers of sufficient strength to insure against damage while in transit; also to see that shipments were loaded correctly and that a waybill accompanied each shipment to insure proper handling en route and prompt delivery at destination.

A reduction was made in the number of bad order reports charged against L. C. L. shipments, the total for June, 1922, being 637, as compared with 935 in June, 1921, a decrease of 298 or 32 per cent. This reduction was accomplished largely by closer attention to the loading, stowing and bracing of the shipments and also the increased use of bulkheads in through cars at the larger platforms.

A novel feature introduced in this year's campaign was the showing of motion pictures illustrating the proper and improper

methods of handling freight with the results of the latter. These pictures featured a test showing the speeds at which merchandise is damaged while being switched. This test was originally made with a specially constructed box car with one side and the roof removed. A wire screen of large mesh was placed on the open side of the car to prevent freight from falling out during the tests and also to permit the taking of the moving pictures, showing what actually occurred to the contents while the car was being switched and subjected to various shocks. Tests were made with merchandise properly trimmed down and also bulkheaded, an impact-recording device placed in the car indicating the degree of impact at various rates of speed ranging from 3 to 20 miles an hour. Up to and including the month of July, claim payments have been reduced over \$1,000,000, or 60 per cent as compared with the same period last year.

Railway Revenues and Expenses for June

Reports filed with the Interstate Commerce Commission show that the 200 Class I railroads had a net operating income in June of \$76,594,006. On an annual basis this represented a return of 4.78 per cent on their tentative valuation. The net operating income for those roads in June last year amounted to \$51,067,115, or at the annual rate of return of 3.18 per cent, while in May this year it was 4.36 per cent.

The roads fell short \$19,000,000 of realizing a return of 6 per cent on their tentative valuation, or \$15,000,000 below the rate of 5 3/4 per cent, the figure fixed by the Interstate Commerce Commission in its rate decision.

Gross operating revenues amounted to \$473,785,294, which was an increase of 2 1/2 per cent over the same month last year; operating expenses \$363,983,667, a decrease of 4 1/2 per cent.

Fifty railroads—29 in the East, 1 in the South and 20 in the West—had operating deficits in June, compared with 56 in May.

For the first six months this year the net operating income of the railroads totaled \$349,092,945, compared with \$145,485,019 during the same period last year. This is at the annual rate of return on their tentative valuation of 4.43 per cent, compared with 1.85 per cent during the first half of 1921. Operating revenues for the first 6 months totaled \$2,611,125,035, a decrease of 2 1/2 per cent compared with the corresponding period last year, while operating expenses totaled \$2,078,672,589, a reduction of 12.1 per cent under those for the first 6 months last year. The carriers during the first half of 1922 fell short \$123,000,000 of realizing a 6 per cent return.

The commission's summary of revenues and expenses for June and for six months follows:

Item	June		Six Months	
	1922	1921	1922	1921
Aver. miles operated.	235,128.28	234,669.97	235,162.87	234,689.95
Revenues:				
Freight	\$331,872,368	\$322,235,611	\$1,865,403,583	\$1,870,442,229
Passenger	96,011,602	99,752,616	502,851,949	457,493,925
Mail	7,463,385	7,687,246	44,686,812	49,116,169
Express	11,472,262	7,589,651	58,464,940	41,652,380
All other transp'n.	15,808,829	13,831,257	83,659,726	77,536,336
Incidental	10,246,805	9,908,660	52,009,422	59,628,285
Joint facility—Cr..	1,081,545	645,339	5,089,610	3,902,742
Joint facility—Dr..	171,502	65,090	1,041,007	1,036,796
Ry. oper'tng rev.	473,785,294	461,585,290	2,611,125,035	2,676,181,270
Expenses:				
Maintenance of way	70,436,736	69,183,317	346,072,512	370,383,937
Main. of equipment	102,329,966	99,687,504	590,949,651	641,851,672
Traffic	7,470,204	6,991,837	42,866,848	43,053,083
Transportation	166,872,625	186,612,715	999,822,862	1,198,287,134
Misc. operations...	4,277,142	4,404,514	22,791,484	25,110,219
General	13,179,328	14,306,618	78,952,058	87,639,917
Transportation for investment—Cr..	582,334	330,212	2,782,826	2,982,002
Ry. oper'tng exp.	363,983,667	380,856,293	2,078,672,589	2,363,343,960
Net revenue from railway operations.	109,801,627	80,728,997	532,452,446	312,837,310
Railway tax accruals.	26,561,731	23,405,715	147,285,803	133,396,337
Uncollectible railway revenues	106,530	129,712	660,703	545,651
Ry. oper'tng inc.	83,133,366	57,193,570	384,505,940	178,891,322
Equipment rents—Dr. balance	5,110,477	4,895,221	26,859,320	24,032,466
Joint facility rent—Dr. balance	1,428,883	1,231,234	8,553,675	9,373,837
Net railway operating inc....	76,594,006	51,067,115	349,092,945	145,485,019
Ratio of expenses to revenues (per cent)	76.82	82.51	79.61	88.31

¹Includes \$2,844,567, sleeping and parlor car surcharge.

²Includes \$2,923,490, sleeping and parlor car surcharge.

³Includes \$14,947,096, sleeping and parlor car surcharge.

⁴Includes \$16,023,105, sleeping and parlor car surcharge.

Traffic News

The Tennessee, Alabama & Georgia resumed passenger service on July 26, after having been dormant since May 1. It has also been announced that within 90 days this road will run express trains between Chattanooga, Tenn., and Gadsden, Ala., with gasoline-driven cars.

J. G. Thomas, a freight agent on the Cincinnati, Indianapolis & Western, was elected president of the American Association of Railway Agents, succeeding W. L. Heacox, of Chicago, who has resigned. The headquarters of the association are to be moved from Chicago to Indianapolis within the next few weeks.

G. Cummins, Davenport, Iowa, traffic commissioner of the Commercial Club of that city, has been elected president of the Iowa Traffic League. C. O. Dawson, traffic manager of the Jacob E. Decker packing plant, Mason City, was elected vice-president; L. M. O'Leary, Fort Dodge, Chamber of Commerce traffic manager, was elected secretary, and E. G. Wylie, Des Moines, was re-elected treasurer.

A rate of one fare for the round trip has been granted to the G. A. R. veterans to their national encampment which will be held in Des Moines, Iowa, from September 24-29. The rate applies to all members of the G. A. R., wives and dependents, widows of G. A. R. members, army nurses of the civil war, members of auxiliary organizations of the G. A. R., and dependent members of their families. Tickets will be on sale September 21 to 26, and will be honored until October 31. Stopovers will be allowed at all points within the final limit of the ticket.

The Southern Pacific has made reductions in rates on several commodities passing through San Francisco from the Far East and Hawaii to eastern points in the United States and Canada. The rate on canned pineapples originating in the Hawaiian Islands, or further west, was reduced from \$1.42 to \$1.15 per 100 lbs., in carloads of 40,000 lbs., and when destined to Montreal and Toronto from \$1.22 to \$1.05, in carloads of 60,000 lbs., and the rate of \$1.50 on gall nuts has been reduced to \$1.

Official List of Sailing Dates for Exporters

Dates of sailing of American-registered steamships going to foreign ports are now advertised by the Interstate Commerce Commission by means of a semi-monthly bulletin, the first number of which was dated July 20. By order of the Commission this bulletin is to be kept on file at principal freight stations throughout the country; that is to say, at all stations where, by the order of the Commission, issued last January, the railroads are required to issue through bills of lading for goods going to non-adjacent foreign countries. The list of stations printed in the January order covers the whole country, beginning with the Aberdeen & Rockfish (three stations) and ending with the Yreka Railroad. Thirty-two lines are represented in this first bulletin, and the schedules fill 25 pages, of which eleven are filled with sailings from New York. Some of the carriers give dates as far in the future as October and November. Prominent lines doing foreign business which are not represented in this bulletin are the Cunard-Anchor, the French Line, Lamport & Holt, Mallory Line, Pacific Mail and the Quebec Steamship Company.

Coal Production

The nineteenth week of the coal strike (August 7-12) opened with a decided increase in production, according to the weekly bulletin of the Geological Survey. Returns indicate an output of soft coal of about 4,800,000 net tons, or 500,000 tons more than the week before. The increase is said to be due to gradual improvement in traffic conditions on the railroads serving non-union fields and also, but only in a very small way, to increased production in fields hitherto throttled by the strike. Despite this

increase in bituminous coal output the nineteenth week finds production still about 550,000 tons below the level reached before the shopmen's strike. The week, however, represents the third consecutive week of increase.

Production of anthracite in the nineteenth week will be less than 30,000 tons.

The trend of production is shown in the cars loaded daily by the railroads. Loadings on Monday, August 7, were 16,021 cars, an increase over the preceding Monday of 7 per cent. During the following days, the loadings dropped, but remained greater than on corresponding days of the preceding week.

The mine reports for the week ended July 29 indicate that traffic conditions improved in some fields, but grew worse in others. As a result of this improvement, working time increased in the Pocahontas, Tug River and Hazard districts. In Winding Gulf, New River and Western Kentucky greater congestion was responsible for increased losses. Service was resumed on the railroad in Colorado that had temporarily suspended operations.

For the season to date, the movement of cargo coal to regular Lake destinations now stands at 3,544,000 tons. This is in round numbers 9,160,000 tons below 1921, and 3,500,000 tons below even 1920, when as now the Lake movement was late in starting.

SHIPMENTS OF COAL BY DISTRICTS

In the Middle and Southern Appalachians, which have been the principal sources of supply, production has been curtailed by the shopmen's strike but has gradually increased during August. As indicated by this week's report, the unorganized districts of this territory gained, by relief from traffic congestion, about 200,000 tons over the output of last week. The non-union and partly organized fields of this region are now furnishing about 41 per cent of the total output in the United States, whereas they furnished 54 per cent in the week ended June 24. The districts in Pennsylvania and the Central Competitive field and those west of the Mississippi have been less affected by traffic congestion. Changes in shipments there measure better the direct influences of efforts to overcome the strike. In Pennsylvania the output since the last week of July has increased somewhat, returns this week indicating shipments larger than reported for any other week during the strike. Union districts in West Virginia also reported slight increases. On the other hand reports for this week indicate decreased production in the strongly organized districts of the Central States.

WEEKLY SHIPMENTS OF SOFT COAL FROM PRODUCING DISTRICTS, AS REPORTED BY THE RAILROADS

Net Tons, Assuming 50 Tons to the Car					
District	First week April 8	Lowest week April 22	Highest week June 24	Last week Aug. 5	This week *Preliminary
Central Pennsylvania.....	132,900	94,150	164,700	158,150	170,520
Western Pa., inc. Freeport.	118,550	64,800	138,900	136,850	146,902
Greensburg-Westmoreland ..	264,450	161,250	164,850	187,800	203,056
Cornellsville and Somerset-Meyers	289,350	198,400	282,850	299,400	331,044
South Fork and Windber..	61,050	2,650	17,000	23,450	25,382
Total Pennsylvania.....	866,300	521,250	768,300	815,650	876,904
Georges Creek, Upper Potomac and Cumberland-Piedmont	18,250	29,300	72,500	74,300	77,322
West Virginia Panhandle..	29,300	39,700	46,150	37,500	38,906
Fairmont	7,150	13,700	50,150	72,050	80,164
Coal and Coke	27,850	35,100	50,900	53,400	55,762
Kanawha and Coal River..	8,100	14,600	58,700	70,950	84,378
Logan	297,600	292,400	393,900	183,000	257,544
New River (C. & O. New River Div.)	61,850	61,900	188,550	100,700	136,220
Winding Gulf (Virginian)..	103,650	103,400	145,150	113,450	46,158
Pocahontas and Tug River..	445,400	478,150	565,000	378,800	458,150
Kenova-Thacker	129,250	146,000	199,900	120,200	158,270
Total W. Va. and Md....	1,128,400	1,214,250	1,770,900	1,204,350	1,392,874
Eastern Kentucky.....	407,600	540,750	687,400	320,700	429,730
Western Kentucky.....	88,850	143,450	394,600	345,500	380,926
Tennessee	28,850	44,350	90,750	74,950	93,590
Clinch Valley and S.W. Va.	132,800	156,250	225,750	146,550	156,310
Alabama and Georgia.....	249,450	194,450	299,150	350,550	339,766
Ohio	34,250	49,600	110,150	109,700	109,956
Indiana-Illinois	6,000	2,200	17,150	11,400	10,682
Iowa, Mo., Kan., Okla., Ark. and Texas.....	25,250	33,600	80,650	78,550	75,754
Colorado	82,000	90,850	174,350	187,100	190,708
New Mexico.....	23,800	25,050	42,000	39,800	38,808
Utah	59,700	54,000	74,000	95,100	101,528
Wyo., Mont., and N. D....	7,000	7,500	8,800	16,550	19,012
Washington	18,500	19,700	20,700	22,250	21,952
Michigan	0	0	0	0	0
Grand total, bituminous shipped	3,158,750	3,097,250	4,764,650	3,818,700	4,238,500

*Total for Monday, Tuesday and Wednesday multiplied by 1.96.

Equipment and Supplies

Locomotives

THE ERIE has ordered 30 Mikado type locomotives from the Baldwin Locomotive Works.

MITSUMI & COMPANY, New York, are inquiring for 2 light locomotives for export to Siam.

THE MIRANDA SUGAR COMPANY has ordered 2 Consolidation type locomotives from the Baldwin Locomotive Works.

THE MISSOURI, KANSAS & TEXAS is inquiring for 40 Mikado type locomotives and 10 eight-wheel switching locomotives. Also for 5 Pacific type locomotives.

THE UNION PACIFIC, reported in the *Railway Age* of July 29 as inquiring for 55 Mountain type and 15 Santa Fe type locomotives, and in the *Railway Age* of August 5 as inquiring for 10 Mallet type locomotives, has ordered the 55 Mountain type and 10 Mallet type locomotives from the American Locomotive Company. The Mountain type will have 29 by 28 in. cylinders and a total weight in working order of 345,000 lb. and the Mallet type will have 26 and 41 by 32 in. cylinders and a total weight in working order of 495,000 lb.

Freight Cars

THE ILLINOIS CENTRAL is inquiring for 75 caboose cars.

THE CENTRAL OF GEORGIA is inquiring for 100 flat cars of 40 tons' capacity.

THE CHICAGO, BURLINGTON & QUINCY is preparing to issue inquiries for 2,000 composite gondola cars.

THE ELGIN JOLIET & EASTERN has placed an order with the General American Car Company for 80 steel underframes.

THE UNITED ALLOY STEEL CORPORATION, Canton, Ohio, is inquiring for 17 hopper cars of 50 tons' capacity; also for 13 all-steel gondola cars.

THE KING CHEMICAL COMPANY, New York, has ordered from the General American Tank Car Corporation 1 tank car for carrying sulphur dioxide.

THE MATHIESON ALKALI WORKS, New York, has ordered from the General American Tank Car Corporation, 20 tank cars of 15 tons' capacity, for carrying liquid chlorine.

THE ELECTRO BLEACHING GAS COMPANY, New York, has ordered from the General American Tank Car Corporation 5 tank cars of 15 tons' capacity, for carrying liquid chlorine.

THE LEHIGH VALLEY has ordered repairs to 1,000 high side steel gondola cars. The order was equally divided between the American Car & Foundry Co., and the Buffalo Steel Car Company.

THE BANGOR & AROOSTOOK, reported in the *Railway Age* of May 13 as contemplating making repairs to 250 additional cars, is now making heavy repairs to 250 box cars in its shops at Derby, Maine.

THE INDIANA GAS & COKE COMPANY, reported in the *Railway Age* of August 5 as inquiring for repairs to 50 hopper cars has placed an order for this work with the General American Car Company.

THE CHICAGO & NORTH WESTERN, reported in the *Railway Age* of August 12 as about to place orders for the repair of 500 box cars, will have these cars repaired at the shops of the American Car & Foundry Co. A contract has also been given for the repair of 1,000 box cars to the Western Steel Car & Foundry Co.

THE CHICAGO, MILWAUKEE & ST. PAUL, reported in the *Railway Age* of July 15 as inquiring for repairs to 1,000 box cars

and 250 gondola cars is reported to have placed an order with A. M. Castle & Company, Chicago, for 750 underframes for the box cars. This company has some material on hand and first contemplated doing its own repair work although strike conditions are said to have changed plans resulting in inquiry which is still pending with no definite move towards placing.

Iron and Steel

THE CHESAPEAKE & OHIO is inquiring for 300 tons of bridge steel.

THE BOSTON & MAINE has ordered from the Boston Bridge Works 500 tons of steel for a bridge at Biddeford, Maine.

THE CHICAGO UNION STATION is inquiring for 23 spans of structural steel to be used for the viaduct over its tracks at Roosevelt road.

THE ALASKAN ENGINEERING COMMISSION, Seattle, Wash., closed bids on August 16 for the furnishing of guard rails, switch stands, switches, frogs, cast iron and steel wheels, brake shoes, boiler tubes and repair materials for locomotives.

THE SOUTHERN PACIFIC LINES have placed an order with the Tennessee Coal, Iron & Railroad Company for 45,240 gross tons of first quality open hearth steel rails for delivery in the first half of 1923 and have also placed an order with the Lorain Steel Company for 670 gross tons of special girder rail, for delivery early in 1923. In the *Railway Age* of July 22, the order for 30,000 tons of the above rail was noted.

Track Specialties

THE WABASH is inquiring for 240,000 tie plates and 200 kegs of track bolts.

THE SOUTHERN PACIFIC has divided an order for 2,500 kegs of spikes between the Gary mill of the U. S. Steel Corporation and the Colorado Fuel & Iron Company.

THE LONG ISLAND will receive bids until 12 o'clock noon August 25 for 138 hard frogs and 12 hard frog points. Bids are also wanted on the same date for 148 open hearth frogs and separate bids for 108 hard switches, 115 open hearth switches, 65 open hearth switch points and 113 guard rails; separate bids for 2,300 twin tie plates and 1,592 intermediate guard rail tie plates, also separate bids for 638 kegs track bolts.

Machinery and Tools

THE TEXAS-MEXICAN has ordered a 79-in. driving wheel lathe from the Niles-Bement-Pond Company.

THE CHESAPEAKE & OHIO has ordered a 42-in. boring mill and a 1,100-lb. steam hammer, from the Niles-Bement-Pond Company.

THE UNION PACIFIC has placed an order with the Industrial Works, Bay City, Mich., for a 15-ton locomotive crane with 45 ft. boom.

Miscellaneous

THE CANADIAN PACIFIC has placed an order with the Industrial Works, Bay City, Mich., for a wrecking crane of 160-ton capacity.

THE NEW YORK CENTRAL has ordered a 60-in. horizontal boring machine from the Niles-Bement-Pond Company.

THE CHICAGO UNION STATION COMPANY has placed an order with the Webster Manufacturing Company for the coal and ash handling equipment to be installed in the boiler plant of the new station.

THE ILLINOIS CENTRAL has given an order to the Standard Stoker Company for 25 stokers to be installed on the 25 Santa Fe type locomotives ordered recently from the Lima Locomotive Works.

THE NEW YORK CENTRAL will receive bids until 12 o'clock noon August 21, for track spikes, fuel oil for locomotive service and metal superstructure for new passenger and baggage subway at Elyria, Ohio.

Supply Trade News

I. S. Kemp, formerly sales manager of the Vaughan & Bushnell Mfg. Co., Chicago, has been elected vice-president of the Evansville Tool Works, Evansville, Ind.

G. E. A. Letourneau, manager of the Canadian Gold Car Heating and Lighting Company, Limited, 346 St. James street, Montreal, Canada, died suddenly at his home on August 5.

Frank S. Martin, senior member of **Frank S. Martin & Son**, 25 Broadway, New York City, died on July 27. **Francis A. Martin** will continue to conduct the business under the present name, and with the same staff.

At a meeting of the directors of the **Sharon Pressed Steel Company**, Sharon, Pa., on August 9, **L. B. LeBel**, **Edward O. Peck** and **Harold G. Mosier**, of Cleveland, and **A. E. Swan**, of Sharon, were elected directors to succeed **W. L. Ulmer**, **W. H. Watkins**, **L. L. Knox** and **W. J. Parker**, retired.

The **Pressed Steel Car Company**, Pittsburgh, Pa., has recently incorporated in Illinois the **Pressed Steel Car Company of Illinois**, capitalized at \$5,000, and the **Koppel Industrial Car & Equipment Company**, also capitalized at \$5,000. The parent company is a New Jersey corporation and the Koppel concern, a subsidiary of Pressed Steel Car, is incorporated in Pennsylvania.

Edward L. Lefler has been appointed manager of the recently organized railroad sales department of the **General Fireproofing Company**, Youngstown, Ohio, with headquarters at 325 West Madison street, Chicago, Ill. Mr. Lefler served as secretary to the vice-president of the New York Central at Boston, Mass., from April, 1907, to August, 1917. For the past five years he has devoted his entire time to selling office equipment and systems to railroads in Chicago.

American Locomotive Company

The American Locomotive Company reports for the six months ended June 30, 1922, a net loss of \$966,780, as compared with a net profit of \$3,901,043 in the corresponding period of 1921.

The condensed income account of the American Locomotive Company and subsidiaries for the six months ended June, 1922, compares as follows:

	June 30, 1922	June 30, 1921
Gross earnings	\$7,399,934	\$25,989,781
Expenses, depreciation, etc.....	8,323,500	21,390,554
Gross profit	Def. 923,566	4,599,227
Interest on bonds of constituent companies, etc.	43,214	43,184
Net profit	Def. 966,780	4,556,043
Taxes		655,000
Preferred dividends* (3½ per cent).....	875,000	875,000
Common dividends* (3 per cent).....	750,000	750,000
Surplus	Def. 2,591,780	2,276,043

*Paid from previously accumulated profits.

President **Andrew Fletcher** in his report to the stockholders says:

The gross earnings for the six months amounted to \$7,399,934, and were the lowest of any six months' periods since the early part of 1915.

After allowing for cost of manufacturing, maintenance, administrative expenses, interest on bonds of constituent companies and \$746,191 for depreciation on all classes of property there was a loss for the period ended June 30, 1922, of \$966,780.

The strong cash position of the company, due to conservation of its net earnings during years of greater earnings, warranted the payment in the six months' period from previously accumulated profits of two quarterly dividends each of 1¼ per cent on its preferred stock, and two quarterly dividends each of 1½ per cent on its common stock, a total of dividends paid of \$1,625,000 during the six months.

The inventory account of materials and supplies on hand and work in progress on June 30, 1922, amounted to \$5,997,611, as compared with \$4,751,900 on December 31, 1921.

The net current assets of the company on June 30, 1922, amounted to \$39,113,392 after providing a reserve of \$795,213 for shrinkage in value of notes and discount on Canadian funds, and a reserve of \$868,917 for United States and Canadian income and profits taxes.

The company on June 30 had no loans payable and had in its treasury on that date in cash and marketable securities \$24,448,304.

During the six months ended June 30, 1922, there was expended for additions and betterments to the plants \$368,615, which has been charged to the reserves created from surplus of previous years.

The total unfilled orders on June 30, 1922, was \$9,067,980, of which domestic business was 92.7 per cent and foreign business 7.3 per cent, compared with total unfilled orders on December 31, 1921, of \$3,344,300, of which 96.2 per cent was domestic and 3.8 per cent foreign business. The largest part of the unfilled orders on hand on June 30, 1922, was not received until the latter part of April and during June, and earnings on same will be included in the last half of this year.

There has been a very material increase in business since June 30, the amount of unfilled orders now on hand being about 100 per cent greater than on that date. We believe additional domestic business will be obtained but at present there is very little attractive foreign business offered.

Obituary

Coleman Sellers, Jr., president of **William Sellers & Co.**, Inc., Philadelphia, Pa., died on August 15 at the home of his daughter in Bryn Mawr.

James Kennedy, president of the **Angus Sinclair Company**, New York City, and managing editor of **Railway and Locomotive Engineering**, died suddenly at his home in New York City, on August 14.



J. Kennedy

Mr. Kennedy was born in Forfarshire, Scotland, in 1850. He served his apprenticeship as a railroad machinist in his native land, and came to this country in 1868, and was later foreman of the **Singer Machine Company**, New York. He studied at night, and graduated from the old Thirteenth street high school, New York, in 1875. He again entered railroad service with the **Lackawanna & Bloomsburg**, now a part of the **Delaware, Lackawanna & Western** at Kingston, and was later foreman at **Scranton, Pa.** From 1879 to 1902 he was foreman at the **New York Elevated** shops in New York City. For the following year Mr. Kennedy was chief cashier of the **Water Department** of the **City of New York**, and in 1904 was deputy superintendent of elections. He contributed for many years to the railroad press, and in 1905 joined the staff of **Railway and Locomotive Engineering**, and became managing editor in 1911. He was the author of a number of handbooks on locomotive subjects.

Trade Publications

SCHOOP METAL SPRAYING PROCESS.—The **Metals Coating Company** of **America**, **Philadelphia, Pa.**, has recently issued a large size, 18-page, illustrated bulletin descriptive of the metal spraying process developed by that company. The bulletin discusses fully the details of the process and the equipment, showing both by text and by numerous illustrations the various forms and classes of structures, such as bridges, pipe, car frames, towers, etc., which can be treated by this process of spraying on a thin coating of such metals as zinc, lead, aluminum, tin, copper, etc., for protection against corrosion and other destructive agents.

ELECTRIC CAR LIGHTING FIXTURES.—A catalogue under the title of "Electric Lighting Fixtures" has recently been issued by the **Safety Car Heating & Lighting Company**, 2 Rector street, New York, which describes and illustrates electric car lighting fixtures made by that company. The catalogue is profusely illustrated in two colors and contains 85 pages. The fixtures illustrated do not cover the entire line of **Safety** designs. They do, however, include those which, by virtue of the demand for them, would seem to represent the majority preference of railway men and the approval of the traveling public.

Railway Construction

ATCHISON, TOPEKA & SANTA FE.—This company contemplates the extension of its line between El Segundo, Cal., and Wilmington Harbor.

BALTIMORE & OHIO.—This company has placed contract with the American Bridge Company for the erection of two bridges on its Parkersburg branch at Smithburg and West Union, W. Va. The new structures consist of plate girder spans, 80 and 112 ft. in length.

CANADIAN NATIONAL.—This company will replace a 2,400-ft. trestle over the Bird Tail Creek valley, 190 miles west of Winnipeg, Man., by an embankment and a 79-ft. deck plate girder span on concrete abutments 56 ft. high.

CARBON COUNTY.—This company has applied to the Interstate Commerce Commission for a certificate authorizing the construction of a new line from a junction with the Denver & Rio Grande Western for a distance of 4½ miles in Carbon County, Utah.

CHICAGO, BURLINGTON & QUINCY.—This company will construct a low grade line from the Illinois river bottoms at Frederick, Ill., to Vermont, a distance of 15½ miles, to facilitate the handling of heavy northbound coal traffic.

KANSAS, OKLAHOMA & GULF.—The Interstate Commerce Commission has issued a certificate authorizing the construction of an extension from Baxter Springs to Military Junction, Kans., 6½ miles.

MISSOURI, KANSAS & TEXAS.—This company will accept bids until Sept. 1. for the construction of a brick and steel locomotive shop, 222 ft. by 475 ft., at Waco, Tex.

NASHVILLE & ATLANTIC.—This company has applied to the Interstate Commerce Commission for a certificate authorizing the construction of an extension of about 12 miles from Campaign, Tenn.

OREGON-WASHINGTON RAILROAD & NAVIGATION.—This company, in conjunction with the Oregon State Highway Commission, will construct an undercrossing on the Shaniko branch at a point about two and a half miles south of Moro, Ore.

PHILADELPHIA & READING.—This company has awarded a contract to F. W. Van Loon, Philadelphia, Pa., for the construction of a building at Eighth and Master streets, Philadelphia, which will be leased to the American Railway Express Company for its use. The plans call for a one-story structure of steel frame covered with corrugated asbestos metal. The building will be 337 ft., 6 in. long and 86 ft., 10 in. wide, supported on a concrete foundation.

PHILADELPHIA & READING.—This company has started the reconstruction of bridges No. 7 and 8 on the New York division near Bethayres, Pa. Both bridges will be constructed of steel encased in concrete and resting on concrete piers. Their lengths will be 55 ft. and 200 ft. respectively.

RICHMOND, FREDERICKSBURG & POTOMAC.—This company has awarded a contract to the Roberts & Schaefer Co., Chicago, for the construction of two 1,000-ton coaling stations to be erected at Acca yard, Richmond, Va., and Potomac yard, Alexandria.

TENNESSEE, ALABAMA & GEORGIA.—This company has applied to the Interstate Commerce Commission for a certificate authorizing the construction of an extension from Gadsden, Ala., to Odenville on the Seaboard Air Line and Margaret on the Central of Georgia, a total of 34 miles.

UTAH CENTRAL.—This company has applied to the Interstate Commerce Commission for a certificate authorizing the construction of a line through or near Huntington, Desert Lake and Cleveland, Utah, to Wellington on the Denver & Rio Grande Western, with a branch connecting with the Utah Railroad, a total of about 50 miles.

Railway Financial News

BOSTON & MAINE.—Equipment Trusts Sold.—The Equitable Trust Company of New York, Paine, Webber & Co., West & Co., and Edward Lowber Stokes & Co., have sold \$3,926,000 6 per cent equipment trust gold notes, maturing January 15, 1923, to January 15, 1935, at prices to yield from 4.75 to 5.75 per cent, according to maturity.

CINCINNATI, INDIANAPOLIS & WESTERN.—Authorized to Issue Bonds.—The Interstate Commerce Commission has authorized an issue of \$1,000,000 of first mortgage 5 per cent gold bonds to be sold at not less than 70 and the proceeds used for corporate purposes.

DENVER & SALT LAKE.—Excepted in 10 Per Cent Rate Reduction.—The commission has rendered a decision on a petition of the receivers of the Denver & Salt Lake to be excluded from the effect of its recent decision prescribing a general 10 per cent reduction in freight rates. The commission finds that the joint interstate rates on coal over this road will be unreasonable to the extent that they exceed the rates in effect on August 25, increased by 20 per cent; but as to the rates on other traffic no protest or objection was made and the petition was granted. The commission has also issued an order according increased divisions of joint rates to this road on bituminous coal in carloads from mines on its line in the Oak Hills (Colo.) district.

EUREKA SMELTING & MINING COMPANY.—To Purchase Eureka Nevada Railway.—This company, recently organized to engage in a mining and smelting business, has secured an option on the Eureka Nevada Railway with the intention of soon purchasing this property. The road is of narrow gage and extends between Eureka, Nev., and Palisade, a distance of 88 miles.

FONDA, JOHNSTOWN & GLOVERSVILLE.—Authorized to Issue Bonds.—This company has been authorized by the Interstate Commerce Commission to issue \$550,000 of first consolidated general refunding mortgage bonds to be sold at not less than 75 or to be pledged from time to time as collateral security for notes.

GRAND TRUNK.—Director Resigns.—The resignation of Howard G. Kelley from the board of directors was accepted by the Canadian government on August 16. Pending the reorganization of the Canadian National board, the government appointed Major Graham Bell, deputy minister of railways, to succeed Mr. Kelley.

GULF, MOBILE & NORTHERN.—Annual Report.—The corporate income account for the year ended December 31, 1921, compares as follows:

	1921	1920*
Average miles of road operated.....	454	470
Operating revenues	\$4,086,217	\$4,147,960
Operating expenses	3,653,018	4,909,103
Net operating revenues.....	433,199	Def. 761,141
Railway tax accruals.....	234,057	179,718
Total operating income.....	98,870	Def. 1,034,097
Total non-operating income.....	55,721	922,541
Gross income	154,592	Def. 111,556
Total deductions from income.....	110,004	703,669
Surplus or deficit.....	44,588	Def. 815,224

*Excludes effects of federal compensation and guaranty.

KANSAS & OKLAHOMA SOUTHERN.—Authorized to Issue Securities.—The Interstate Commerce Commission has authorized this company to issue \$310,000 of two-year, 7 per cent promissory notes, the proceeds to be used for construction, and to pledge \$310,000 of its first mortgage bonds as collateral security.

LAKE ERIE & WESTERN.—Control by Nickle Plate Authorized.—The Interstate Commerce Commission has authorized the acquisition by the New York, Chicago & St. Louis of control of the property of the Lake Erie & Western by means of an operating contract.

MINNEAPOLIS, ST. PAUL & SAULT STE. MARIE.—Dividend Held Up.—Federal Judge W. F. Booth, at Minneapolis, Minn., has issued a restraining order directing that the dividend of 2 per cent declared last March cannot be paid until the United States Circuit Court of Appeals passes on the legality of the issue.

This means no dividend will be paid at least until December 4, when the Circuit Court meets in St. Louis. Judge Booth issued his order following a notice of an appeal by the Continental Insurance Company, and the Fidelity Fire Insurance Company from his recent decision that the common stockholders were entitled to participate in the earnings.

MISSOURI-KANSAS-TEXAS.—Asks Authority to Issue Securities.—The Missouri-Kansas-Texas Railroad Company has applied to the Interstate Commerce Commission for authorization of the issuance of its securities in accordance with the plan of reorganization which was announced last November. The new company proposes to issue the following securities: \$52,942,752 of prior lien mortgage 5 per cent gold bonds; \$27,236,000 prior lien mortgage 4 per cent gold bonds; \$29,121,347 prior lien mortgage 6 per cent gold bonds; \$57,500,000 convertible adjustment mortgage 5 per cent gold bonds; \$30,000,000 of 7 per cent preferred stock, and 1,000,000 shares of common stock without par value. The company also asks authority to issue from time to time, upon surrender of the convertible adjustment mortgage bonds, such additional amount of preferred stock up to \$57,500,000 as may be necessary to effect such conversion. A copy of the plan of reorganization as announced by J. & W. Seligman & Co., of New York, and Hallgarten & Co., of New York, reorganization managers, was filed with the application. The exchange of securities is to be handled by a syndicate including those two companies, Speyer & Co., and the Equitable Trust Company.

NEVADA-CALIFORNIA-OREGON.—Increased Divisions Ordered.—The Interstate Commerce Commission has issued an order finding that divisions of joint rates accorded the Nevada-California-Oregon by the Southern Pacific to be inequitable and directing that they be increased by 10 per cent of the divisions accruing to the Southern Pacific.

NORTHERN PACIFIC.—Asks Authority for Equipment Trust.—This company has applied to the Interstate Commerce Commission for authority for an issue of \$4,500,000 of 5 per cent 10-year equipment trust certificates to be used in the acquisition of cars to the amount of \$6,195,000. Through an agreement with the North Western Improvement Company and the First National Bank of New York the certificates are to be purchased by the improvement company at 99.

PENNSYLVANIA.—The Stockholder and the Employee.—In reply to an inquiry as to how the employees of the Pennsylvania Railroad have fared, as compared with its stockholders, by reason of the wage and dividend changes made since the pre-war period, A. J. County, vice-president in charge of accounting, has authorized the following:

In 1914 wages on our railroad averaged \$850 a year per employee. Today, after all readjustments, including those effective July 1, 1922, they average \$1,550. Our wages are therefore 82 per cent higher than in 1914, while the cost of living, according to government statistics, is 67 per cent higher. This means that each of our 200,000 employees, on the average, is able to buy considerably more of the desirable and needful things of life than his pre-war wages would obtain.

Our stockholders are in a different position. They number 140,000. Most of them own less than 50 shares each. The average ownership is 71 shares. Before the war 71 shares yielded an income of \$213 per year. In 1921 our directors were forced to reduce the dividend on Pennsylvania Railroad stock from the rate of 6 per cent to 4 per cent per annum. This cut the return of the holder of the average number of shares to \$142 per year. He is now getting one-third less dollars than in 1914, and in addition, like the employee, he has to meet the higher cost of living. This means that the actual buying power of his present income from dividends is much below that of his pre-war return.

Our management feels an obligation, which has been publicly stated, to restore the 6 per cent rate as soon as that step can be wisely taken, without risking deterioration of the property. Even then our stockholders' incomes will merely be restored as to the number of dollars, but not as to purchasing power, as long as the cost of living remains above normal.

As between the stockholder and the employee of the Pennsylvania Railroad, the burdens of the war have fallen entirely upon the former. The same condition, of course, is true of the railroads in general, and has undoubtedly been an important factor in accounting for the failure of the men, who are at present on strike against the recently authorized very moderate wage readjustments, to enlist the support of the public.

It is, and long has been, the declared policy of the Pennsylvania Railroad to pay its employees the best wages and offer them the most favorable working conditions in the country, or for that matter in the world. The stockholders of the company have consistently supported the management in this policy, in order that loyal, efficient and satisfied working forces might be maintained, and the public receive the best service possible. Most of our men are, and always have been, of this type.

In the present crisis, the great majority of our shop forces have remained loyal, wisely accepting a conservative wage readjustment which is fair to their interests, and necessary as a measure of justice both to the owners and the users of our railroad. Moreover, among our men there are doubtless

thousands whose course of action has been influenced by knowledge of the facts that the railroads have had to accept a reduction in freight rates, and that wages on our railroad, even in a depressed year like 1921, took over 51 cents out of every dollar paid by the public for service; whereas after paying those wages, taxes, material and supply bills, fixed charges, etc., less than two cents remained out of every dollar of revenue to pay dividends and maintain the credit of the Pennsylvania System.

PEORIA RAILWAY TERMINAL COMPANY.—Receivership.—W. G. Bied and H. I. Battles have been appointed co-receivers by the United States District Court for the Southern District of Illinois, Northern Division.

SEABOARD AIR LINE.—Equipment Trust Authorized.—The Interstate Commerce Commission has authorized this company to assume obligation and liability in respect of \$3,009,980 of equipment trust certificates to be issued by the Chase National Bank of New York, including \$2,450,000 to be sold at not less than 97.02 and \$559,980 of deferred certificates to be sold at par.

SOUTHERN PACIFIC.—Authorized to Abandon Branch.—The Interstate Commerce Commission has issued a certificate authorizing the abandonment of its branch from Tulasco to Metropolis, Nev., 7.8 miles, which is owned by the Central Pacific.

UNION TERMINAL.—Authorized to Extend Notes.—The Interstate Commerce Commission has authorized this company to enter into agreements with the holders of \$550,001 of its 5 per cent unsecured notes for the extension of the maturity date from October 10, 1922, to October 10, 1923, and for the payment of interest at 6 per cent.

VIRGINIAN & WESTERN.—Acquisition of Control Authorized.—The Interstate Commerce Commission has authorized the acquisition of control of the Virginian & Western by lease on the condition, that the Virginian shall not dispose of the stock of the Virginian & Western now owned or controlled by it without the consent of the commission and that the amount to be paid by the Virginian under the terms of the lease for the purpose of maintaining the corporate organization of the Virginian & Western shall not exceed \$1,000 a year.

VIRGINIAN.—Asks Authority to Increase Dividend.—This company has applied to the Interstate Commerce Commission for authority to change the dividend rate on \$27,955,000 of preferred stock from 5 to 6 per cent, the dividend to be cumulative and calculated from August 1, 1922.

Revised Regulations Concerning Common Directors

The Commission has issued revised regulations relative to authorizations of common officers and directors under paragraph 12 of section 20a of the Interstate Commerce Act. The order supersedes the Commission's order of October 11, 1921, and revises the regulations thereby prescribed. The provisions of the former order permitting applications to be made by carriers have been eliminated and henceforth applications can be made only by the individuals concerned and each application must be confined to one person.

Dividends Declared

Canadian Pacific.—Common, 2½ per cent, quarterly; preferred, 2 per cent, semi-annually; both payable September 30 to holders of record September 1.

Chestnut Hill.—1½ per cent, quarterly, payable September 5 to holders of record August 19.

Cincinnati, New Orleans & Texas Pacific.—Preferred, 1¼ per cent, quarterly payable September 1 to holders of record August 18.

Delaware & Bound Brook.—2 per cent, quarterly payable August 11 to holders of record August 1.

North Pennsylvania.—\$1.00, quarterly, payable August 25 to holders of record August 10.

Pittsburgh, Youngstown & Ashtabula.—Preferred, 1¼ per cent, quarterly, payable September 1 to holders of record August 21.

Southern Pacific.—1½ per cent, quarterly; payable October 2 to holders of record August 31.

Union Pacific.—Common, 2½ per cent, quarterly; preferred, 2 per cent, semi-annually; both payable October 2 to holders of record September 1.

Trend of Railway Stock and Bond Prices

	Aug. 15	Last Week	Last Year
Average price of 20 representative railway stocks	70.61	70.72	55.35
Average price of 20 representative railway bonds	88.65	88.95	74.97

Railway Officers

Executive

D. Upthegrove, general solicitor of the St. Louis Southwestern with headquarters at St. Louis, Mo., has been appointed acting president to succeed **J. M. Herbert**, deceased.

W. F. Woodul has been elected temporary president of the re-organized International & Great Northern with headquarters at Houston, Texas. **R. E. Williams** has been elected temporary secretary.

P. E. Crowley, vice-president, and **R. D. Starbuck**, assistant vice-president, of the New York Central, have had their authority extended, effective August 7, over the Toledo & Ohio Central, the Kanawha & Michigan, the Kanawha & West Virginia and the Zanesville & Western of which properties the New York Central recently became lessee.

F. B. Sheldon, vice-president of the Toledo & Ohio Central, the Kanawha & Michigan, the Kanawha & West Virginia and the Zanesville & Western, which properties have recently been leased by the New York Central, has been given, effective August 7, the title of resident vice-president with duties to be assigned. His headquarters remain as heretofore, at Columbus, Ohio.

Traffic

I. W. Gent has been appointed general agent of the Minneapolis, Northfield & Southern with headquarters at Kansas City, Mo.

Harry L. Farrell has been appointed commercial freight agent of the Buffalo, Rochester & Pittsburgh with headquarters at New Castle, Pa.

J. M. Ball, general traveling agent, freight department, of the International & Great Northern with headquarters at Houston, Tex., has been promoted to general agent with the same headquarters.

J. A. Staus, commercial agent of the Duluth, Missabe & Northern with headquarters at Duluth, Minn., has been promoted to assistant general freight and passenger agent with the same headquarters, succeeding **G. C. Ross**, resigned. He will be succeeded by **D. N. Jones**.

L. F. Vosburgh, traffic manager of the New York Central, had his authority extended, effective August 7, over the Toledo & Ohio Central, the Kanawha & Michigan, the Kanawha & West Virginia and the Zanesville & Western of which properties the New York Central recently became lessee.

Operating

H. J. Humphrey, whose appointment as assistant general superintendent of the Ontario district of the Canadian Pacific was announced in the *Railway Age* of July 15, page 137, entered railway service in 1896 as a telegraph operator for the Intercolonial Railway. The following year he entered the service of the Boston & Maine in a similar capacity and remained until 1901 when he returned to the Intercolonial. In 1902 he went with the Canadian Pacific and a year later was promoted to train dispatcher. In 1911 he became chief dispatcher at McLeod, Alta., and the following year was promoted to car service and fuel agent of the Saskatchewan district with headquarters at Moose Jaw, Sask. In 1915 he was promoted to superintendent of car service, Western lines, with headquarters at Winnipeg, and the same year was transferred in a similar capacity to the Eastern lines with headquarters at Montreal. In 1916 he was promoted to superintendent at Farnham, P. Q., and from that time until his recent appointment served in a similar capacity at Montreal, Brownville Jct., Me., and Toronto, Ont.

R. B. Hoffman, whose promotion to superintendent of transportation of the Pacific Fruit Express with jurisdiction over car service matters east of Omaha and El Paso, Tex., with headquarters in Chicago, effective August 1, was reported in the *Railway Age* of August 5, was born on February 3, 1885, and entered railway service as an employee of the Chicago, Burlington & Quincy in June, 1900, from which time he served in the capacities of mileage and car record clerk, yard clerk, fireman and switchman on the Chicago, Burlington & Quincy and the Chicago & North Western until 1905. From 1905 to November, 1906, he was car service and transportation clerk for Armour & Company and Swift & Company and from November, 1906, to January, 1908, had charge of the car record department of the American Railway Clearing House. He entered the service of the Pacific Fruit Express on January, 1908, in charge of the car record, mileage, block diversion and block department of this company until April, 1912, when he became traffic manager of the E. L. Hasler Company. He re-entered the service of the Pacific Fruit Express in October, 1914, and from that time until his recent promotion had charge of the transportation department with headquarters at Chicago.

Obituary

G. E. Simpson, general supervisor of transportation of the Chicago, Milwaukee & St. Paul, with headquarters at Chicago, Ill., died August 16 from heart trouble.

John R. Schrader, general car foreman of the New York Central at Mott Haven, N. Y., died Friday, August 11. He was also second vice-president of the Central Railway Club.

George A. Cullen, who was passenger traffic manager of the Delaware, Lackawanna & Western until March 19, 1920, and who since that time had been vice-president of the North American Fruit Exchange,



G. A. Cullen

with headquarters at New York City, was found dead on August 14 in the room of a hotel at which he was staying in New York City. Mr. Cullen was compelled recently to leave his work for a rest, having been working night and day for months, causing a nervous breakdown. He was born in St. Louis and began railway work with the Wabash Railroad. He subsequently served as rate clerk on the Missouri Pacific. In 1895 he was chief rate clerk and rate sheet compiler of the

Southern Passenger Association at Atlanta, Ga. He then was consecutively chief clerk in the passenger department of the Plant System, of the Western Passenger Association at Chicago, and (in 1898) general agent of the same association in charge of the immigration bureau at New York. In 1900 he went to the Delaware, Lackawanna & Western as general western agent at Chicago; six years later he was appointed general passenger agent with office at New York and in 1911 was promoted to passenger traffic manager. During the war Mr. Cullen served as the chief of a section of the United States Food Administration in Washington. As a United States Railroad Administration executive in charge of consolidated ticket offices he was credited with the successful preparation of the plan on which they are operated in the larger cities.

UTAH has joined with other Western states in requiring that motor vehicles engaged in the transportation of freight and passengers stop before crossing railroad tracks. The Public Utilities Commission of Utah recently issued an order that the stop must be made not less than 20 ft. and not more than 50 ft. from the track.